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ABSTRACT

The Ohio State University, Inland Fisher Guide Division of General Motors, and United Auto Workers Local 969 formed a collaborative partnership in 1990 to train employees whose inadequate literacy skills made them unable to respond to the requirements of "synchronous manufacturing" (or "just in time" production). One of the goals is to reduce the number of defective parts to fewer than 500 per million parts produced. Three linked needs assessment activities were review and analysis of All Purpose Operator job aids, analysis of the job for literacy requirements, and observation of employees to assess literacy needs. Instructors were selected, and instructors' training materials with adult education, literacy, and workplace context components were developed. Staff created a curriculum based on materials used in the plant, job duties and tasks, and participants' learning needs. Participants were assessed to determine their particular needs, and an Individualized Education Plan was developed to identify appropriate learning and instructional activities. Recruiting strategies included open houses, employee-recruiters, and flyers/brochures. A Six-Week Basic Skills Program was developed and offered on work time. External and on-site evaluation activities were conducted. Outcomes of the project were establishment of a viable Lifelong Learning Center and a program perceived as helpful by both employees and supervisors. The importance of sensitivity to the complexities of plant culture also emerged. (The 60-page report is followed by the external evaluators' report, literacy task analysis, publicity and dissemination materials, instructor training materials, sample math and communications lessons, 6-week course administrative materials, learner background and assessment forms, recruitment materials, workshop materials, and program evaluation materials.) (YLB)

ED347302

WORKPLACE LITERACY FOR WORLD CLASS MANUFACTURING

Final Report

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INTRODUCTION

To achieve "Total Customer Satisfaction"
with world class quality at a
competitive cost and total
responsiveness to the needs
of the customer.

This "motto" hangs on the wall of the training room at the Inland Fisher Guide Division of General Motors (IFG/GM) plant off West Broad Street in Columbus, Ohio, part of the "rust belt" where automotive manufacturers have been struggling for well over a decade to revive what some call a dying industry in the United States. Companies and unions are investing in a variety of ways to gain a more competitive position and go beyond that--to become once more a "second to none" technologically advanced world class industry, as they say at Inland Fisher Guide when asked about this plant's goals. But being world class and highly competitive demands a workforce which may not be literally on the job at this point in time, even though workers are employed to fill all the slots on the production line.

Planning for Provision of Literacy Skills for Jobs with New Demands for Employees

In WORKFORCE 2000, Johnston and Packer note: ". . . even the least skilled jobs will require a command of reading, computing, and thinking that was once necessary only for the professions" (1987, p. 116). Certainly this is the case in the automotive industry, which is now effecting major workplace changes necessitating increased literacy levels in order to enhance competitiveness.

In Columbus, Ohio, the national workplace literacy picture is true for many automotive industry workers, including many at IFG/GM and UAW Local 969. The plant manufactures selected body parts for cars, mostly for General Motors. In the hourly wage workforce of over 1800, management and union personnel determined that around 500 employees, plus more than 50 laid-off employees, are unable to read and compute well enough to work competitively at their jobs. In other words, they are not able to "read to do," "read to assess," or "compute to do" in their functional contexts. The plant is concerned about the need for total quality and the delivery of satisfactory products. The economic woes of the automotive industry clearly cannot be laid solely on the backs of the workers; yet the industry cannot afford to face the future with a workforce lacking the skills needed to be competitive in the international market.

With respect to the composition of the workforce, it is known that 20 percent of the IFG/GM workforce is Black, 79 percent white, with 1 percent being other minorities. Twenty-four percent are women. Many of the whites have Appalachian origins, and it is known that they, as well as Blacks and Hispanics, experience significantly higher school dropout rates than the general population. The assimilation of women and these other minority populations into the increasingly technological and literacy-driven workforce is seen as critical.

One of the major system changes being implemented is what Fisher Guide calls "synchronous manufacturing," often called "just in time" production. One of the goals is to reduce the number of defective parts to fewer than 500 defects per million parts produced--their specific definition of world class quality. Employees are expected to form synchronous work groups in which teamwork, flexibility, literacy, and continuous improvement are crucial components. These manufacturing changes also dictate that each employee in the groups be cross-trained for a variety of tasks rather than the few for which they were responsible before these changes in the manufacturing process were initiated.

This was the rationale under which The Ohio State University, IFG/GM, and UAW Local 969 formed a collaborative partnership in 1990 to train employees whose inadequate literacy skills made them unable to respond to the requirements of synchronous manufacturing. The workplace literacy program was expected to result in increased productivity for these employees and for the manufacturing plant, thus contributing to the survival of the plant in the marketplace and continued employment for the workers.

This partnership was formed under the carefully researched concept that true adult literacy is context-bound; that is, it is important to pay attention to the following elements of the life and work context of those to be assisted in learning:

- Effective educational techniques must be used which recognize that the learners are responsible, employed adults whose concerns relate to their age and developmental stage.
- Based on the findings of cognitive psychology, adults' literacy learning must be closely connected with their experience bases, which are highly individualistic and closely associated with their cultural heritage.
- Workplace literacy curriculum materials should be based on literacy skills applied to and developed within a work context.
- The American work environment and specifically that of IFG/GM is undergoing significant technological change in order to regain a strong competitive stature.
- Adults' receptiveness to learning experiences may be influenced by their needs for related support services.

Recognition is growing that an application-oriented setting can provide an avenue to the acquisition, enhancement and transfer of basic literacy skills, especially for those whose learning styles are better suited to concrete job context learning rather than the more abstract approach of traditional school classrooms. Therefore, the project proposed to teach all the needed literacy skills (including reading, writing, speaking, listening, computation) with a metacognitive approach and within the context of their direct application to job tasks. This functional context approach not only builds expertise by combining basic literacy with problem solving and decision making, but provides the motivation of immediate relevance for the learner. The principles of individualized, self-paced, competency-based education contribute to a positive environment for learning. It was intended that this approach, along with the other aspects of the model, would yield a workplace literacy program very different from the "school" environments in which many of these adults may have experienced frustration and failure.

The current employees are those with whom Inland Fisher Guide must work and on whom their success depends. The decline in birth rates since 1960 has sharply reduced the number of workforce entrants until beyond the turn of the century. Moreover, within this shrunken group of young people will be sharply increased percentages of minorities and immigrants for whom basic skills acquisition has, in the past, been most elusive. In addition, the labor structure in the automotive industry places emphasis on seniority for job retention, so it is especially important that those who have the jobs be suitably skilled as those jobs change in their requirements. This factor has relevance for employees who are on lay-off status, retaining their seniority rights for reentry. Because these laid-off employees will be the next people in line for a job, should expansion take place, they were included in the proposed literacy program, so they would be able to work within the new mode of manufacturing upon return to work.

At the plant, employees were expected to increase productivity, with greater retention and job satisfaction, as well as become more flexible and adaptable. It was anticipated that they would experience an improved self-concept and greater personal satisfaction from achieving a higher level of general literacy, as well as becoming more effective parents and contributing members of society.

It was thought that both the employees currently working and those on layoff might need support services to enable them to participate in the proposed workplace literacy program and be fully receptive to learning. An individualized educational plan would be developed for each program participant, and the need for particular support services incorporated in the plan. The required support services would be provided through the Employee Assistance Program at IFG/GM, and were to be supplemented by community agency services accessed through a helping organization, the Columbus Private Industry Council (PIC). It was thought that the PIC could arrange for JTPA services for those eligible by reason of long-term layoff.

It was anticipated that up to 500 employees could be served by the workplace literacy program in the plant setting. Employees were to be recruited on a voluntary basis, and recruiting continued throughout the program. The program was designed to be operated flexibly, according to need. Employees would have access to instruction two hours daily over a ten-month period. Participants could choose a level, frequency, and duration of involvement based on their Individualized Education Plans (IEPs, appendix G), counseling, and progress in developing the desired skills. Positive reinforcements of various types (financial, psychological, and tangible items such as certificates of progress) would be generously used to supplement the inherent rewards of program participation. The financial reinforcement provided by the IFG/UAW "nickel fund," was to be one-half pay for up to four hours per week in the Lifelong Learning Center (LLC).

Project Overview

Employees who operate the Employee Assistance Program and the Training Program at IFG/GM had determined the literacy needs of the hourly workers as measured against the increasing demands of the job setting and the approximate number of employees for whom there was a disparity. Workplace literacy material which must be read and work settings requiring certain skills were identified. These data formed the basis of the literacy program, intended to be workplace "specific," as the literature demonstrates that such literacy is different from school-based or more general literacy (Mikulecky, 1985).

The literature reveals that adults find such workplace literacy more relevant to their jobs, and therefore exhibit higher motivation and improved attendance rates in these programs than in general literacy programs (Mikulecky & Diehl, 1980). In fact, Sticht (1988) notes that learners in workplace literacy programs make gains in general literacy that are as large as or greater than the gains made by learners in general programs. However, learners in general literacy programs make almost no progress in job-related literacy. Consequently, meeting workplace literacy needs can yield benefits beyond job success, although job success was this project's primary goal. General literacy instruction was therefore to be provided only as it was needed to raise individual employees to a "reading to do" level, to become independent workers who can learn from manuals rather than having to be orally and physically shown how to perform new operations.

The model for delivering instruction to meet the above conditions was envisioned as a chain linking job needs to required worker literacy levels and, in turn, to educational treatments. The chain began with a systematic needs assessment, using the DACUM/DELTA process (see page 18) to help employees analyze the duties and tasks of the All Purpose Operator (APO), the new job configuration to implement synchronous manufacturing of auto body parts, and to link those tasks to needed basic skills. The duties and tasks were then numbered and used on a lesson plan form to tie the plan to an actual on-the-job task.

Through completion of the literacy task analysis (LTA portion of the DELTA process) many of the tasks revealed by the DACUM/DELTA were further analyzed to specify in detail the literacy skills embedded in the job, including higher order and metacognative skills. These skills formed the "pool" from which more specific skills were drawn for each lesson.

Learners were assessed to determine their particular needs, and an IEP (see page 35) was developed to identify appropriate learning and instructional activities. Figure 1 below illustrates the chains of activities leading to the development of the lesson plan.

DACUM/DELTA -------> LTA ------->
Learner Assessment --------> IEP ------->
> Lesson Plan

Figure 1. Instructional Development Chain

Curriculum Materials

The curriculum materials used in the project were based on both the duties and tasks of the jobs as well as the learning needs of the participants. Following the needs assessment that clarified the relationship between workers' knowledge and the skill requirements of the workplace, job context instructional materials were developed or, where appropriate, adapted from existing materials. Only materials that would help participants develop the skills needed for their job tasks were employed, and it was intended that this material would be at--or move toward--the level the participant would use on the job.

"All Purpose Operator Guide Gas Filler Door," a job aid used at IFG/GM is typical of the workplace material used. (A portion of this job aid is included in appendix A.) Examples of existing curriculum materials that were considered for adaptation included the following series: *English on the Job*, *Math on the Job*, *Reasoning Skills on the Job*, and *Job-Related Basic Math* (unpublished). All of these materials have been developed by the O.S.U. College of Education's Center on Education and Training for Employment (CETE). Materials developed specifically for children were avoided.

A part of the curriculum development process involved selecting instructional techniques. Because job-related literacy research has shown that collaboration, group work, and division of labor are essential for learning on the job, instructional processes were to include these elements. It was thought that use of these processes would also facilitate the changeover to synchronous manufacturing.

Training Facilities

The IFG staff, with concurrence of the Joint Activities Committee at the plant, selected space for the Lifelong Learning Center (map in appendix B) where there were vacant offices on the second floor of the Administration Building, adjacent to the engineering departments. Carpeting and room dividers (six feet tall) were installed to create individual study and computer carrels, some group work areas, instructor cubicles and a small conference room. From a learning perspective, it was quiet and removed from the noise, activity, and "odor" of the plant. The instructors found the LLC physical environment very positive and "workable."

When the program evolved from an individualized instruction format to a group/classroom format (see page 14), the room dividers were rearranged and the study carrels were relocated and made smaller. The instructors' cubicles were also made smaller to give space to the "classroom" part of the LLC. It was a very flexible situation.

While it was intended that the workers would feel a sense of inclusion in the administrative area, and while all agreed that it was a comfortable and well-planned environment, some sentiment existed among plant personnel that having the LLC located in an administrative ("management") area was undesirable, out of their "territory" psychologically, and far away. This location may have operated against some union employees' visiting the LLC (according to "grapevine" feedback). An alternative, the plant Joint Training Office, where the project management/union partners were housed, was located adjacent to the plant floor near one end of the building. Many workers walked by that office daily while entering and leaving work. While it would have been convenient, additional space for the LLC in that area would have been very limited.

Project Structure and Management

The management plan was designed to capitalize on the strengths and capabilities of each of the partners (IFG/GM, UAW, OSU), to combine to provide education to address the many workplace literacy needs of the IFG/GM employees. All the partners collaborated on the total program, which was viewed holistically. Each of the partners brought special expertise to one or more elements of the context for training discussed previously: adult education, literacy, the workplace (in which technological change is a primary factor). This special expertise was reflected in their roles and in the organizational structure of the project participants.

The project was located in the College of Education's Adult Literacy Center for Individual and Organizational Development under the directorship of Dr. William D. Dowling, Professor of Adult Education (Department of Educational Studies), who was responsible for overall administration, assisted by Sandra G. Pritz of CETE as Project Manager. The role of the College was to develop, implement, and evaluate the workplace literacy training program according to the selected model and in accordance with a cooperative needs assessment. The College role was carried out under the guidance and leadership of three Senior Project Associates in cooperating departments of the college:

- Johanna S. DeStefano, Professor of the Graduate Program of Language, Literature, and Reading Education, who was responsible for the literacy aspects (strand) for both instruction and instructional materials selection/adaptation/creation.
- Susan Imel, Research Specialist of the Center on Education and Training for Employment, was responsible for the adult education nature (strand) of the training as well as the identification of instructional materials.
- Sandra G. Pritz, Research Specialist, also of the Center on Education and Training for Employment, who had responsibility for literacy applications in the workplace, provision of job-related curriculum materials through review and adoption/adaptation, and the math curriculum strand. She also acted as Project Manager.

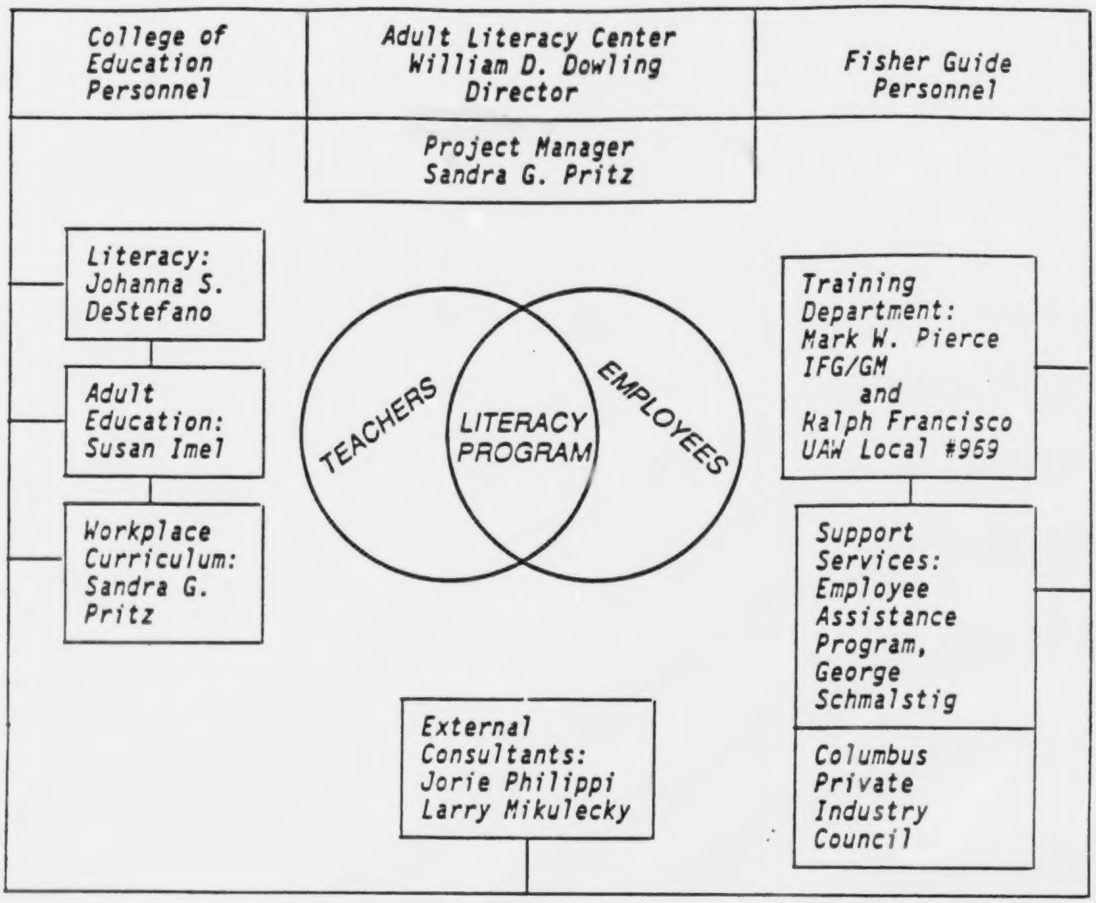
The Project Director and the three Senior Project Associates were responsible for training a full-time teacher/coordinator and two part-time teachers who managed the learning experiences on site at Fisher Guide. Well beyond this task, the senior staff were involved on an ongoing basis in all aspects of the program. One half-time graduate student associate and one program associate assisted them in their activities. Project evaluation activities were conducted by two external specialists, Jorie Philippi and Larry Mikulecky, through Performance Plus Associates. These consultants, who are nationally recognized experts on workplace literacy, worked with the partners to assure quality in both the processes being used and the instructional materials resulting from the adaptation effort by reviewing all aspects of the project and providing recommendations.

IFG/GM and UAW Local 969 had joint responsibility for the workplace aspects of the training context. All training activities within IFG/GM are developed and conducted jointly, indicating a solid development of management-union cooperation in this sphere. Mark W. Pierce and Ralph Francisco, Joint Training Coordinators, were responsible for recruiting workers for the literacy program and for providing job-related information and review of all program components, assisted by a member of their training staff.

A graphic presentation of the organizational structure showing the roles of each member of the partnership is shown in figure 2.

Evolution of Project Goals

A change in goals during the course of the project affected curriculum, attendance patterns, numbers of participants, and instructional delivery, and will be referred to throughout this report. While not anticipated at the time the project proposal was written, the evolution of originally stated goals can in retrospect be viewed in three phases occurring from the beginning to the end of the project. It is difficult, if not impossible, to trace all the implications of the goal changes in a few short paragraphs, but this brief introduction plus subsequent references throughout the report will provide a relatively complete picture to the reader.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Support Services: Employee Assistance Program, George Schmalstig
Columbus Private Industry Council
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Figure 2. Organizational Structure

PHASE ONE: This phase started at the beginning of the contract (April 1990) and ended approximately in December 1990. It involved all the original assumptions of the proposal, including the goal to contribute to improving the competitive position of the Inland Fisher Guide Plant by helping implement the "team concept" in synchronous manufacturing and by linking education to ongoing training. Workers (up to 500 identified by the IFG/UAW project team) would need elevated basic skills in order to participate in the synchronous model. Productivity measures would be used--scrap, cycle time, rework, etc.--to link worker literacy with the plant's competitive position. During this time, plant jobs were analyzed for literacy content, the physical arrangements were made to create and formally open a Lifelong Learning Center, teachers were hired and trained, and curriculum was selected or developed along strict guidelines adhering to the functional context approach deemed critical to elevating basic skills within the work setting. A sense that workers would be reluctant to admit to literacy skills deficiencies led to discussion centered around issues of confidentiality, one of the outcomes being a push by the union representative for one-on-one instruction, off work time, in an open-entry, open-exit mode.

PHASE TWO: This phase started in January 1991 and ended in August 1991. Although teachers were busy, many fewer learners volunteered to attend the LLC on their own time than had been hoped (50 compared to the hoped-for 500). The downturn in the economy in general and in GM production in particular resulted in an uncertain work environment, many layoffs, and general low morale. The push to implement the synchronous manufacturing model and to tie literacy to competitiveness was abandoned, leaving the project team with a need to redefine measures of effectiveness. Strenuous efforts to recruit participants were undertaken. Efforts to "piggyback" on, or extend or support union training efforts proved fruitless. The IFG/UAW members of the project team changed from a position of advocacy for work-place based content to support for learner or life-based curriculum and expressed the viewpoint that "education" should not be directly related to plant performance as is "training." LLC participants often turned out to be workers close to retirement or who had reasons for coming that were not work related. These learners showed little interest in materials that reflected their jobs, amplified by the fact that they were not coming on work time.

Another reason for the shift was that advice from others suggested that learners should simply be taught what they want to learn as they perceive it rather than be introduced to job content instruction as a point of entry to both work and other aspects of life. Teachers were in a difficult position trying to juggle the stated goals of the project, changing perceptions of the goals of the LLC, the political undercurrents that characterized the plant, and the attempt to recruit, retain and assist learners. Helping to break the gridlock, the IFG/UAW members of the project team revised their position on the learner confidentiality issue, and they began supporting the offering of workshops on work time to groups of interested participants by teachers and OSU project staff.

PHASE THREE: This phase began in September 1991 and continued to the end of the project. The low-attendance problem was successfully addressed through the development of a six-week program format allowing employees to attend instruction during their work day. Employees in a Jobs Bank (laid-off) were also part of a pool of workers comprising the new instructional groups. Other Jobs Bank workers replaced learners on the plant floor for the six-week period. Individual, one-on-one instruction continued, but as a supplement to the primary, group delivery mode. The success of this effort illustrates how critical is the support of plant leadership and other personnel in producing results. The topical workshops also continued during this phase, led by OSU project staff and LLC teachers. Significant time and effort was devoted to redesigning attainable, measurable objectives and creating instruments and data collection systems to describe impact in terms of newly defined objectives.

PROGRAM IMPLEMENTATION

Needs Assessment

The overall purpose of the needs assessment was to clarify the relationship between workers' knowledge and the skill requirements of the workplace. This "gap" between what the workers know and what they need to know was recognized only in general terms at the time that the project was initiated. In the hourly wage workforce of over 1800, it had been estimated by management and union personnel that around 500 employees, plus more than 50 laid-off employees, were unable to read and compute well enough to work competitively at their job.

This estimate was generated as follows. About 21 percent of the hourly employees at IFG have not graduated from high school. Another 5 percent did not state their educational level at the time of hiring. Forty-nine percent of the hourly workers have high school diplomas, but if they are typical of national norms, as many as 25 percent of this group may be functionally illiterate. For example, one 35 year-old male, an assembler on first shift and employed at the plant for 12 years, had recently requested that another employee read him a form he received from his supervisor. The assembler stated he couldn't read even though he was a high school graduate, admitting that his teachers liked him and passed him through the system.

Further, it was assumed that many of those who have been literate had experienced the skill deterioration commonly found among those who have not used such skills since being in school. The union training official noted that after instruction booklets had been installed at the various presses in the plant, many employees had to be physically shown how to follow the new instructions, as they could not read the booklets themselves.

The general understanding of what the workers would need to know was a reflection of the expressed intention for the plant to convert to "synchronous manufacturing" by training virtually all workers to be All Purpose Operators, cross-trained for a variety of tasks to be performed in a new team structure of "synchronous work groups," and highly geared to statistical process control techniques. The Training Department was in the process of providing an orientation program to synchronous manufacturing for all employees of the business units first designated for the conversion. They were aware, however, that some did not feel capable of dealing with the training. For example, when the project manager enrolled in the course to become familiar with it, she sat next to a woman who remarked when the training manuals were passed out, "Oh, I never read any of this stuff. I just take it home and ask my daughter to tell me what it says."

Accordingly, the project staff decided that the emphasis of the workplace literacy training would be placed on the tasks of the All Purpose Operator and that every effort would be made to support the plant's conversion to synchronous manufacturing. The needs assessment was correspondingly focused in this direction. The needs assessment was undertaken as three linked activities:

- Review of All Purpose Operator job aids to determine levels of reading and math required to use them
- Analysis of the job of the All Purpose Operator into its component tasks along with identification of the communications and math skills required for each task
- Observation of employees' performance of key tasks to analyze them into the steps performed

Each of these activities will be discussed.

Review and Analysis of Representative Sample of Job Aids

The plant project team gathered job guides, manuals, and training booklets for the OSU staff. They were asked to include any printed material used by the All Purpose Operators, even signs hung in their work area, forms to be read or completed on the job, and computer printouts.

The OSU staff inventoried the materials and identified reading objectives and types, math types and visuals (see appendix A). General employee information literature was also inventoried, but not analyzed. Materials relating to mathematics, such as PreSPC Math and the Charting Easybook, were reviewed for math objectives. The APO Manual and the Charting Easybook were selected as primary target material for program use, with a variety of other materials for supplementary use.

The guides, manuals, and booklets were then scanned onto computer discs and run through software with the following readability formulas:

- Flesch
- Flesch-Kincaid
- Fogg
- PC Read

The range of results was so wide for the same text that an additional readability formula, FORCAST, designed by Sticht (1973) for technical materials, was also run manually on selected text. This turned out to be relatively easy if samples were carefully selected (e.g., sampling across a single text, especially of any length, is desirable in order to get an idea of the degree of reading level consistency).

Reading levels for in-plant materials ranged from approximately 8th grade to postgraduate, the latter being the United Auto Workers-General Motors labor contract.

Thus, the demands made on hourly employees in terms of reading levels of the materials they dealt with on the job and in their training to become All Purpose Operators (APOs) were identified.

The job of All Purpose Operator was analyzed using the recently developed DELTA© (DACUM Enhanced Literacy Task Analysis) process (Pritz 1990). The process begins with a DACUM session to identify the technical tasks performed on the job and then systematically identifies the basic skills content of specific technical tasks.

Analysis of Jobs for Literacy Requirements

DACUM is an occupational analysis technique that depends upon group process and a panel of expert workers to define their occupation in performance-based terms. The technique rests on the principle that workers themselves are the best able to describe their own job. The analysis includes: (1) identification of the duties of the occupation (i.e., the general areas of responsibility); (2) identification of the tasks that comprise each duty, in precise action terms (task statements); (3) review of the task statements for completeness and accuracy; (4) structuring the statements into a logical sequence; and (5) a listing of the required knowledge and skills, tools and equipment, and worker traits and attitudes.

DACUM analysis produces an occupational definition in the form of duty and task statements, all expressed in performance terms. The visible outcome of the DACUM analysis is a chart containing statements of the occupational competencies currently required and possessed by expert workers. The DACUM chart is useful in developing a training plan and for assessing needs and achievements.

The DACUM process has been used as the first step in developing or revising training programs for a variety of occupations (radiologic technician, credit union supervisor, nurse, machinist, vocational teacher, entrepreneur, etc.). The DACUM process, when correctly implemented, has proven to be a reliable and efficient method for competency identification.

DELTA stands for DACUM Enhanced Literacy Task Analysis. DELTA is a refinement to the conventional literacy audit process used to assess the needs and form the foundation for a workplace literacy program. Building on the systematic DACUM job analysis, the employee panel is guided to identify the literacy skills (including reading, writing, speaking, listening, and computation) needed for each task as well as the nature of the problem solving and decision making required. The outcome is a profile chart giving a detailed portrayal of the job, both in terms of occupational competencies and their academic foundations. The contents of the chart are validated and further refined through targeted observations and materials analysis techniques.

A panel of seven expert All Purpose Operators was selected from several different business units in the plant. Over a two-day period, with the help of an OSU facilitator, the panel started from a summary job description of five sentences and detailed a profile of 97 tasks grouped into 14 duty areas. After the panel reached consensus on the technical tasks, these were probed for basic skills content in the DELTA part of the process.

The following types of probes were used by the facilitator:

- Reading
  - -- What do you need to read in order to do this task? (Remind them that they are reading to **DO**, not to **KNOW**) Manuals? Charts or diagrams? Labels? Safety rules? Computer screens or printouts? What else?

- -- If you read (manuals), can we be more specific about what (manual) you read?
- -- And why are you reading the (manual)? To locate ordering information? To interpret information about how parts fit together? (This last question should be asked only if time will allow for this level of detail. Responses are valuable for conducting the analysis, however.)

- Mathematics

  - -- Do you calculate, estimate, or measure to do this task?
  - -- What do you (calculate)? Tolerances? Quantities to order?
  - -- What kind of mathematics do you use? Basic functions? Addition? Subtraction? Trigonometry? Geometry?
  - -- What kinds of numbers are involved? Whole numbers? Fractions? Decimals? Imaginary numbers?

- Reasoning, problem solving, decision making

  - -- To complete this task, do you need to solve a problem? Make a decision? Analyze a situation?
  - -- What kind of outcome is expected?

Similar probes were used for writing, oral communication, and science.

The resulting DELTA profile is presented in appendix A. This profile was submitted to the employees on the panel, their supervisors, and the Training Department for review.

The APO DELTA profile provided the framework for interviews of supervisors and observations of tasks on the plant floor by OSU staff. They conducted observational literacy task analyses of a number of tasks from the profile, as well as a few tasks from other individual job categories. They went onto the plant floor, watched exemplary, highly skilled employees working on the task, and asked questions about what they were doing, how they were doing it, and what they were thinking about when they were doing it. The protocol for the questions was adapted from that developed by Jorie Philippi (1990) and is presented in appendix A.

From the observation notes, OSU staff proceeded to write a sequential list of the steps of the task with related communications and math concepts required. These literacy task analyses (LTAs) were the basis for development of sample curricula demonstrating the "chain" followed from the job tasks through the specification of the underlying literacy and numeracy skills needed, to an actual set of learning experiences on those skills. A sample of an LTA and related curricula is included in appendix A.

Assessing Literacy Needs in a Changing Industrial Environment

The focus in the needs assessment was on literacy needs associated with the performance of tasks within the plant. Expert workers who served on the DELTA panel and who were interviewed and observed were very cooperative and involved, and very enthusiastic about the program.

Given the voluntary nature of the program, it might have been helpful to have gone to a broader group of employees with a different type of needs assessment--a survey or interviews about what employees felt to be their needs for increased literacy skills and the kinds of learning for which they would be willing to give up their leisure time, even with pay. When the needs of individual learners who came to the LLC were assessed, the data about their interests and what they were willing to study compiled slowly and gave no clue about the reasons why other employees were **not** coming to the LLC. That data did, however, finally yield a different picture of both plant and individual goals that were a more realistic reflection of changes occurring in the plant environment.

Though the corporation espouses the use of synchronous manufacturing principles, the reality in the plant did not support this, which may be an indicator of the fact that fundamental change often seems to take longer than anticipated. It seemed that team decisions on quality of parts, shift workload, and individuals' responsibilities quickly regressed to decisions by supervisors, and that the traditional "piecework" concept of producing quantity took over from the synchronous concept of producing quality parts.

The Joint Training Coordinator representing management at the plant expressed the viewpoint that the vision of the change to synchronous manufacturing had perhaps been utopian. Implementation efforts had revealed that what reportedly works well in other industrial cultures would not necessarily work well in this one and that evolution was necessary for modification of key concepts. Although long-run survival may depend on pursuing synchronous manufacturing, the risks of high short-term costs of premature change continue to operate in the balance.

When the instructors interviewed learners (beginning the autumn of 1990), most reasons for wanting more education were not job related. Reasons for learning included, but were not limited to:

- Assisting children with school work
- (Officially) Completing a high school education through GED
- Preparing for college courses (for personal interest and possible future careers)
- Overcoming spelling, math, writing, reading inadequacies, and fears in speech
- Enhancing skills to assist in religious, civic, or other "outside" activities
- Preparing for other jobs due to perceived plant instability

Although a small minority of potential learners was interested in pursuing other jobs in the plant, studying workplace materials generally was not the course of choice. Learners felt that they "lived and worked" their jobs for many hours a day, week after week, and workplace materials were looked upon as non-desirable to tolerable by most. Although IFG/UAW was paying for up to two paid hours per week in the LLC (so, therefore, workplace materials should be a "logical" choice), most learners were not motivated by the money, and simply viewed it as a "nice" extra; these employees have an average annual salary of $35,000.

Preparation of Instructors and Curriculum

Selection of Instructors

As the OSU project staff recognized instructors to be key people in a workplace literacy program, they developed the job descriptions very carefully (see appendix B). Of great importance was the balance among expertise in the three targeted areas: adult education, literacy, and workplace context. The teaching positions were "posted," following the procedure of Ohio State University position listings, and the instructors were hired. The full-time Teacher Coordinator was not able to join the project until early August, 1990; the first part-time instructor began the day the Lifelong Learning Center opened on September 4, 1990; and the second part-time instructor began work the beginning of October, after the program had begun at the plant.

It is extremely difficult to achieve balance in the experience and expertise of a single individual, in terms of the three targeted areas. First, workplace experience is not widely available unless one is recruiting among trainers. But trainers usually do not have an education-related instructional background, especially in the area of literacy. Surprisingly, adult basic education teachers often tend to be elementary grade teachers, without the needed training in working with adults rather than children. Furthermore, most of their literacy experience is clearly not with functional context and competency-based curricula, but more on a bottom up, basal series approach--which is inappropriate for the workplace and for many adults whose difficulties with reading in the first place may be linked to that approach.

The three instructors selected were strong in adult education and workplace knowledge; in terms of basic skills, they were all qualified to work with math. Almost universally in the candidate pool, the literacy skills instructional background, e.g., speaking, listening, reading, and writing, was the weakest in applicants' backgrounds. Yet effective limited in-service training is difficult because of the complicated nature of literacy. What is needed is some level of prior professional education in and experience with teaching literacy, so that there is a foundation on which to build during the in-service training concentrating on functional context instruction within a problem-solving, critical thinking, metacognitive approach.

Development of Instructors' Training Materials with Adult Education, Literacy, and Workplace Context Components

During the first months of the project, materials for training the instructors in the three components of the program were selected and assembled in a manual. The three sections of the manual contained a number of articles and book chapters, relevant to each of the components, with some overlap between literacy and workplace materials in the workplace section. This manual formed the backbone of the training materials and remained a useful reference tool during the life of the project (see appendix C, Teacher Training Materials). The items included were selected for the degree to which they reflected the best practices and research findings in each of the three components. They also served as an orientation to the premises and goals of the project.

Other training materials were developed by project staff after the LLC opened and instructor needs became clearer. A lesson plan format (appendix C) was developed enabling the teachers to match the learner's assessed needs with the workplace needs in a systematic manner. Although the lesson plan sequence within the curriculum was intended primarily for instructional purposes, it was also a training component in that it enabled understanding of the chain from the needs analysis to working with a learner. Throughout the first six months of the project, other articles and materials were also selected and developed by project staff for use in training sessions, based on unfolding needs of the instructors, the students, and the program.

Training Instructors in the Tricomponent Instructional Strategy

A "preservice" block of time for training was not available before the instructors began their duties at Inland Fisher Guide. Such a block of training time should be regarded as a necessity, partly because functional context workplace literacy programs are relatively new, with few instructors, if any, in a given geographical area having had the requisite experience. Starting to teach in a completely new program is difficult enough without having to devote time and thought to an instructors' training component.

Instructor training was conducted on a weekly or bi-weekly basis from September, 1990, through February, 1991, at the Lifelong Learning Center at Inland Fisher Guide. The three major components of this training were literacy, math, and adult education. Over one hundred hours were originally planned but around 50 hours total training time was achievable in reality.

Literacy instructor training was concentrated on helping the instructors develop the skills to deliver a curriculum with a metacognitive thrust (see appendix C, "Summary of Issues") and based on the plant's written materials and job structure, with emphasis on the upskilling necessary for an All Purpose Operator (APO) position. Typical training sessions were around two hours in length. Occasionally, they were held weekly, but usually the training occurred on a bi-weekly basis, depending on the demands on the instructors at the plant (see appendix C for an outline of a representative session). Learner assessment and diagnosis was typical of topics covered in the sessions, so as to connect the results from using assessment instruments to instructional practice, and to interpret the responses made by individual learners in "building" their IEPs (see page 35).

Training in communications instruction was concentrated on general instructional strategies much more than on how to use already created materials. A holistic curricular approach was stressed, based in part on the important communications skills identified by experts (see appendix C) and on workplace skills such as team building. Strategies were stressed because they could be applied to any available materials; together, the strategies and materials would create the curriculum for each learner. Once the LLC was open, the training sessions also included a component dealing with issues raised by the teachers regarding individual students.

Instructor training in math concentrated on setting up lesson plans and instructional strategies to show relationships between the math skill (see appendix C for a skill list), general applications, and specific application at IFG. Samples of job context math scenarios were offered to illustrate how learners and teachers can generate applications of math skills in their own lives and work. Teachers were introduced to a computerized math curriculum affording unlimited independent practice for learners experiencing difficulty in a particular area.

Strategies such as self communication and pair problem solving were stressed to foster metacognitive skill development among learners, particularly among those students experiencing math anxiety. The goal is to help learners think about how they think, and encourage them to discover their own solutions (appendix C).

Inservice in adult education took place through meetings in which the instructors discussed their concerns related to adult education backgrounds. Since all three instructors had either training and/or experience working with adults, the meetings were more conversational that instructional in nature. In areas in which they needed more information, reference materials were identified. For example, they were interested in more material on adult learning disabilities and learning styles. When relevant materials to adult education aspects of the project were identified, they were shared with the instructors.

Feedback from the instructors indicated that some of the training was useful for them, but that the open-entry, open-exit nature of the program precluded widespread use of "uninterrupted, mind-probing instructional techniques" in 35-40 minute blocks of time.

Obtaining and Reviewing Candidate Instructional Materials

Few materials were found of real use to the project based on the needs assessment conducted at the plant. First, few followed a functional context approach, and most were much more generic than what were sought. Second, few were based on research findings and best practices in each strand, and most demonstrated almost no incorporation of metacognitive, critical thinking approaches. Instead, they resembled school work in that the pages were full of worksheets requiring only short, single-thought answers rather than continuous text or even much beyond low-level reading skills. The project staff was attempting to avoid reproducing a school-like atmosphere and type of learning, partially because so many of the learners had not done particularly well in that setting previously.

After the instructors were hired, a curriculum committee, which included the teacher coordinator, was created to evaluate materials identified throughout the project.

There was some frustration on the part of the teachers who would like to have included materials that would appeal to other interests of learners besides work. Some relevant materials were found and ordered. However, during the life of the project, relatively few already published and available materials were found to fit within the parameters of the plant needs assessment results or with research and best practices in the three components on which this project was based.

At the point in the project when it became clear that some modification of the goals for the project was necessary due to changes in plant goals, the curriculum was broadened from the workplace emphasis to incorporate topics of greater interest to the learners who were coming to the LLC. At Inland Fisher Guide, this was virtually inescapable because of the age of the workforce, the nature of the hourly jobs themselves, the seniority system, and for recruiting purposes. Many learners made it clear that they wanted to learn about subjects that were not work related; since they were putting their own time in, they felt that was reasonable, notwithstanding the funding from the company and from the National Workplace Literacy Program. Consequently, some materials of a broader nature were incorporated into the curriculum, although again most of those were found lacking in the kind of problem-solving approach that was sought.

Adopting/Adapting Instructional Materials on the Basis of Established Criteria for Adult Education, Literacy, and Workplace Context

Given the limited availability of already published instructional materials, staff moved beyond adopting and adapting to creating a curriculum based on the materials used in the plant. That is why the instructor-training component had such a strong emphasis on strategies and processes rather than reliance on instructional materials. To support this creation, OSU project staff developed the lesson plan format for both communications and math and also put together communications and mathematics skills lists for the teachers to use when planning each learner's IEP. However, more materials needed to be either created or found for the teachers to use.

OSU staff were able to prepare a number of job context math scenarios very closely related to the job activities undertaken by IFG employees (see appendix D). These are one or two paragraph scenarios illustrating how a particular basic math skill (1-78 on the list of math skills) is used in a given occupation such as machinist, heavy equipment operator, metal product assembler, and sheet metal worker. The scenarios provided a model for functional math illustrations to be elicited from the learners based on their own work and life experiences.

In addition to the math scenarios, among the materials created by OSU project staff were booklet surveys, which were surveys of some of the training materials created in the plant, and Directed Reading Text Activities (DRTAs) on plant materials (see appendix E). The teachers also created quite a bit of material based on articles in automotive magazines, the plant employee newsletter, the local newspaper, and so on. Many of these focused on the automotive industry and issues in the workplace. In the time available to them, the instructors also adapted what they could from the published adult education materials. Scarcity of time for adaptation was a source of concern.

Toward the end of the project, the teachers created the curriculum for the series of six-week classes (appendix F). The course was comprised of basic skills instruction in communications skills and in math. In the communications skills strand, personal writing was incorporated, so a great deal of continuous text was created.

Needs Assessment of Participants

The assessment instruments and process to be used were determined by OSU/IFG/UAW group consensus during the course of many meetings during the summer and fall of 1990. A point of continuing discussion revolved around the issue of consistency in assessing all learners in all areas versus flexibility in responding to those learners who were interested in studying a specific topic (such as **only math**). Concern was voiced that the general approach would be difficult to justify to learners.

The selection of potential instruments was made by the investigator largely responsible for a given area. Possible selections and modifications were discussed with the consultants/evaluators. Then the recommended instruments were presented to the group of principal investigators who discussed and reached consensus on which to use.

Instruments Used (see appendix G)

ABLE SERIES (The Psychological Corporation): the ABLE series was selected to test reading comprehension and computation skills. The SELECTABLE is given first to determine if the learner should test at Level 1, 2, or 3. Of the six tests available in the series (Vocabulary, Reading Comprehension, Spelling, Language, Number Operations, and Problem Solving), only Reading Comprehension, Spelling, Language, Comprehension, and Number Operations were used. These were administered to everyone who entered the program, with a few exceptions for individuals who could not read well enough to take the test.

Although the ABLE tests are good indicators of basic ability in most cases, they have some drawbacks, as do most assessment instruments. The Reading Comprehension test had bias in some of its answers. This became evident as some learners explained the rationale of their "incorrect" choices. The Number Operations test is a test of mathematical symbols and raw numbers, with no problem solving. Also, a learner may not recognize the symbols in a problem such as "25 divided by 5 equals?," but that learner might easily know the answer to "How many nickels are in a quarter?".

Reading Questionnaire, Parts 1 & 2 (RQ 1 & RQ 2 - appendix O): Since the ABLE scores on reading comprehension were difficult to interpret in terms of what would be helpful instructionally in setting up the IEPs, other assessment instruments were developed and utilized as well. One was the Reading Questionnaire, Parts 1 and 2. The questionnaire was a modification of the Siofer et al (1990) questionnaire developed for use in their Academy. Part 1 was redesigned to gather information about the IFG learners' reading and writing habits and demands, including what was needed to do their jobs in the plant. It was best administered one-on-one. Part 2 contained a reading selection from materials used at the plant and a series of questions designed to probe what they did when they read the selection. Because of the project's initial job context approach, an excerpt from a plant manual was chosen -- and found to be of little interest to most learners.

The CLOZE was suggested for use as a supplement to the ABLE by the two consultants/evaluators. It was designed using reading material from a plant-produced training manual and was administered on an untimed basis. The original (training manual) text was not clearly written in many parts. Therefore, the grade level derivations (5th and 8th) of the CLOZE developed by project staff were somewhat awkward for some readers, as was the original. Learners usually were able to supply synonyms more easily than exact matches.

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From an instructor's perspective, the CLOZE was best administered as a puzzle or game. Learners seemed to respond best to that type of challenge. The CLOZE was helpful to instructors in recognizing ethnic diversity and dialects (through errors in verb tense and word endings) and possible spelling problems. However, it does also help indicate cue systems not attended to by some individuals such as nondialect-motivated syntactic mismatch. These issues serve to underscore the sometimes controversial nature of the CLOZE.

GAP Instrument: The GAP was created later in the project to gain more insight into the reading comprehension abilities of the learners. The GAP is based on a cohesion analysis of the reading material, which determines what content chains are in that material. Widely spaced deletions of words are made, based on the topics covered. Responses by individuals give a good indication of whether or not they can determine the topics in the material and follow them as they read, which constitutes a major part of their comprehension abilities. The selection from a plant manual was not changed in any way to achieve lower readability levels. Results from the GAP are discussed specifically in two of the three case studies.

Learners initially interested in improving reading and writing skills were asked to compose a **writing sample**. Instructors assigned topics such as the responsibilities involved in plant jobs, how to solve problems on the job, skills needed to be an auto worker today, and the future of the auto industry. Learners were asked to write as much as needed to discuss the topic.

The Learning Styles Inventory (LSI), adapted with permission from the Wichita Public School System, Wichita, Kansas, is a multi-strand learning activity. Best results were achieved in a group setting where learners could discuss their observations about themselves and others. The LSI includes the following skills: reading, analyzing, scoring, adding, multiplying, transferring data, chart plotting, reading a chart, summarizing, determining personal strengths and weaknesses, understanding the actions of others, perceiving in communication, and applying skills in teaching and learning from co-workers.

Additional Assessment Strategies

Learning disability assessment: In the attempt to assist learners perceived to be learning disabled, two learners were evaluated in the Huelsman Peters PsychoEducational Diagnostic Clinic (HPPDC) in the OSU College of Education. The clinic specializes in diagnosing reading disabilities, especially in youth. One of the two learners also had his hearing tested at the OSU Speech and Hearing Clinic at the suggestion of the HPPDC. The service fees for these tests were reimbursed to the learners through the GMC Tuition Assistance Program (TAP) because they were education-related endeavors.

Both learners acquired useful information from the evaluations. One learner felt that his reading/memory difficulties were going to take too much time and energy to overcome. However, he did find comfort in knowing that something was "wrong" and not just a figment of his imagination. The other learner discovered that he was not a "dummy." The confirmed reading disability and hearing damage were, again, "comforts." He then began to face the problems and learned how to work with them.

Learner/instructor interviews were very effective for learning about the attitudes and backgrounds of the learners. The interview sheet devised was purposeful in getting good background information. Through these interviews, the instructors discovered the discrepancies between perceived vs. actual learner goals.

In identifying providers for employee support services, confidentiality and employee benefits usually dictated what instructors could recommend. Essentially, referring a learner to his or her Employee Assistance Program (EAP) representative was the extent of project involvement with support services.

Workplace Literacy Activities

Instructional Logistics

The project began on the premise of one-on-one individualized instruction, off-work time, in September, 1990. Learners visited the LLC on their own initiative after the Grand Opening on September 4, 1990. Instructors informed learners of LLC background payment policies, hours, confidentiality, and assessment procedures.

Learners were first interviewed regarding educational background, work history, and future educational goals. Next, learner assessments were conducted off-work time by appointment with an instructor. The learners' schedules and personal availability dictated how quickly the assessments were completed. If a learner was anxious to begin learning activities as soon as possible, he/she was administered the nonpriority assessments at another time. For example, a learner focused on math might not be given all assessments involving reading and writing until a later date. In this way, the learner could experience some math activities as soon as possible. (Most were anxious to "get going!") Learning activities began upon the completion of the essential assessments and after or concurrent with the development of the Individualized Education Plan. If time allowed, learners took some assignments home. Others worked only in the LLC. Since most learners visited the LLC between 3:00 p.m. and 5:30 p.m., there was a variety of learners and activities on any given day. Because of the one-on-one instruction in the project initially, instructors went from learner to learner to assist them in individual activities.

Individualized Education Plan

Individualized educational plans including support services were developed jointly by the instructors and the participants, the adult learners. A learner-centered approach highlighting the knowledge already possessed by the adult learner was used in IEP formulation. Rather than focusing initially on identifying skill gaps, i.e., the gap between levels of knowledge and job requirements, the IEP emphasized what the participant already knew. It was felt that participants with poor self-concepts in regard to learning could be guided to be aware of their strengths and thereby help overcome feelings of inadequacy and failure possibly carried over from previous school experiences.

IEPs were developed through interviews and results from assessment tools. It was recognized that tests should be not used alone to indicate reading or literacy levels and that many have problems of reliability and validity. Because of these shortcomings, they were only used to approximate participants' achievement or literacy levels. Diagnostic instruments were to be used with each participant's consent and only after rapport was developed between the participant and project personnel.

Thus, both the interviews and the assessment instruments assessed current levels of knowledge, but in different ways. The interviews, which were conducted by the instructors, helped learners understand and appreciate the knowledge already possessed as well as how they could use it in increasing their basic skills. The assessment instruments provided a quantifiable measure of literacy levels used in development of program materials and in formative and summative evaluation.

Developing IEPs involved discussing the learners' major concerns and studies of choice. When needs for support services become apparent, instructional staff worked to include these services in the IEP.

While the instructors guided the activity of the learners, they were encouraged to offer suggestions about activities that would suit them. Few learners were able to fully achieve their goals in **all** areas. They usually experienced mastery in certain areas. However, work schedules, personal commitments, and other obstacles impeded progress of many who were not totally committed to personal success.

Instructional Content

Program studies included, but were not limited to the following areas:

Math:

- properties of numbers
- whole number operations
- fractions
- decimals
- percents
- ratio and proportion
- pre-algebra/formulas
- basic geometry

These activities were taught as math concepts and then applied to workplace or daily life situations.

Writing:

- whole language approach where appropriate
- writing process: brainstorm, organize, draft, rewrite
- sentence structure and paragraphing
- essay format
- messages, memos, and instructions
- business letters

- forms
- punctuation and grammar
- spelling

Reading:
- pre-, during, and post-reading: predict, read, compare, apply
- main idea; thesis and theme
- supporting details
- the 5 W's: who, what, when, where, why
- analysis
- summarizing
- reading charts and diagrams
- locating library resources

Teamwork:
- leadership and fellowship: group roles
- characteristics of leaders
- group survival exercise

As the program continued, materials based on plant and industry topics were created by the instructors and by OSU project members. Teaching and learning processes were also stressed, along with specific literacy and math content. To that end, the lesson plan format was created (appendix C). This format, as described earlier, highlighted process, including problem solving and metacognitive processing.

The employees received one hour of regular pay for each two hours spent in the LLC, with a cap of two hours of pay per week. If a learner spent two hours in the LLC, pay was received for one. If four or more hours were spent in the LLC, two hours of pay were given. The burden of timekeeping fell on the instructors, partly because plant personnel wanted outsiders to do the record keeping to maintain confidentiality.

Recruitment Activities and Strategies

A number of activities were undertaken in order to recruit employees into the program. This section of the report describes these activities and the strategies that were developed as a result.

Primary responsibility for recruitment was assigned to staff at IFG. The company used both publicity and personal contact to initiate its recruitment activities. Information about the program appeared in the house organ and on bulletin boards. A group of employees especially suited to assist in recruiting were designated to be part of a personalized recruiting effort known as the "Ask Me" (as in "ask me about the Lifelong Learning Center") group. Some in this group had themselves experienced learning problems. Their assignment was to "talk up" the program and to make individual contact with those on a list of referrals compiled by the Employee Assistance Office.

The grand opening of the LLC on September 4, 1991 was staged as a ribbon-cutting ceremony followed by an open house so as to give employees an opportunity to visit. Speakers at the ceremony included the plant manager, the union president, and the Dean of OSU's College of Education. "Ask Me" group members attended the ceremony and were available to speak with prospective participants. The opening was covered by the local media. During the month following the open house, the ***Buckeye Bulletin*** (the company house organ) included an article listing programs available and encouraging people to contact the LLC for more information. Throughout the project, articles about the LLC were featured on a regular basis in the ***Buckeye Bulletin***. By October 11, 1990 approximately 25 people had entered the basic skills (literacy) program at the LLC.

By November 1990 it became apparent that the numbers of learners coming to the LLC were not as high as desirable; recruiting additional learners became a priority to be addressed by all project staff. It was decided that a joint recruitment renewal campaign to coincide with the new year might help offset the negative effects of impending layoffs and low plant morale, factors which seemed to be deterring participation in the project.

In early December, a joint brainstorming session (appendix H) was held with two OSU staff and a number of plant employees, plus the training department staff at IFG. Subcommittees were formed to make specific plans for a late January campaign using the best of the brainstorming output. The plans were implemented (in a form greatly modified by the plant manager) and resulted in 160 employees visiting the LLC. Enrollment in the LLC's literacy program increased somewhat following this effort. Appendix H contains the record of the work of the committees developing the joint recruitment renewal campaign.

Also, as a part of this concerted effort to increase program enrollment, the entire January 9, 1991 issue of the ***Buckeye Bulletin*** was devoted to the LLC. Articles written by participants, instructors, and the LLC coordinator explained the benefits of attending the program. This publicity resulted in some additional inquiries about the LLC. In February, a second "grand opening" was held at the plant, encouraging employees through diploma-like fliers to visit the LLC and receive a coupon for a free soft drink in the cafeteria.

Following an on-site visit from the project's external evaluators in February 1991, the project staff held a series of brainstorming sessions that resulted in "next steps" to be taken to ensure the success of the project. Two steps identified through this process related directly to recruitment: (1) using company training as an opportunity to identify those with basic skills needs and (2) provision of training for the "Ask Me" group. The goal of these steps was to assist plant trainers and "Ask Me" group members in developing sensitivity in (1) identifying those who could benefit from basic skills training and (2) approaching and referring employees to the training program.

Two of the OSU staff members held a series of meetings with plant trainers and "Ask Me" group members during April and May 1991. Deterrents or barriers to participating in the LLC identified through these sessions included the following:

- Location of LLC in management section of plant
- Lack of knowledge about program, i.e., "People haven't heard about it."
- Scheduling during off-shift hours
- Lack of self-confidence, self-esteem on the part of prospective participants
- Lack of perceived need between what can be learned in LLC and the future of the plant/their jobs

(Appendix H includes information about these activities, including minutes from meetings and materials used at the sessions.)

As a direct result of these sessions, a member of the training staff began to include a visit to the LLC as a part of the plant's All Purpose Operator (APO) training. At the trainer's request, an LLC instructor provided a "sample" lesson to these APO groups when they visited the LLC. The experience of APO trainees visiting and being introduced to the LLC resulted in additional inquiries and some new program participants. Additional information about the LLC was displayed on in-plant signs and on employee pay stubs.

For the OSU project staff, an unanticipated result of the meetings was increased understanding of the plant culture. The conversations with the individuals in these groups--most of whom were hourly workers--provided insights about the changes taking place in the manufacturing processes from their perspective. In additional conversations with other hourly workers, the viewpoint was expressed that supervisors were, in many cases, perceived as blocks in the change process.

Concurrently, a number of other strategies and activities related to recruitment were under development and implementation. These included the initiation of a series of workshops designed to introduce employees to the basic skills program and to the instructional staff. The workshops took place from March through August 1991, with approximately 150 individuals participating. (See page 43 for further discussion of these workshops.)

The instructors were also engaged in a number of recruitment activities during the course of the project. These included maintaining visibility on the plant floor through visits to participants during their shifts, distributing information and answering questions about the LLC outside the cafeteria, and attending business unit meetings. In addition, the instructors planned and implemented several of the workshops in order to introduce themselves to prospective participants.

Because large numbers of plant employees were assigned to the Jobs Bank during most of 1991, OSU project personnel began encouraging plant representatives to consider permitting employees to participate in the basic skills program during shift time. (Individuals assigned to the Jobs Bank are not working on the production line, but rather are available to fill in where needed.) In April, the instructors presented the plant's Joint Activities Committee with a proposal for a 240-hour basic skills instructional program designed to take place during a six-week period. When the proposal was finally accepted in September, a waiting list developed immediately for the 15 available slots in the first session of the program. Thus, making instruction available "on the clock" created a demand for the program.

During the final months of the project, instruction was offered in both formats, i.e., both on and off shifts, and recruitment of learners continued. In addition to the strategies discussed previously, word of mouth proved to be an effective recruitment strategy. Frequently, participants who had developed a level of comfort with the program would bring in or refer others to the LLC.

Exhibit 3 lists the recruiting strategies employed over the course of the project.

Exhibit 3
Strategies Used to Recruit Participants

Open houses
Employees designated as recruiters ("Ask Me" group)
Articles in house organ
Training for plant trainers and recruiters in identifying and recruiting prospective participants
Workshops
Instructor visits on plant floor
Information table in plant cafeteria
Instructor attendance at plant meetings
Flyers/brochures
Invitations to visit LLC distributed to employees at shift changes
Notices of program sent to employee homes

Monitoring and Modifying Program Activities and Delivery

The roller coaster activities of the plant (layoffs, job reassignments, economic influences), lower numbers of LLC participants than desired, their spotty attendance, and the continued discussion of the workplace vs. personal interest learning issue continued much of 1991. During this time, LLC programs were difficult to maintain. Learner participation had peaks and valleys, usually reflective of plant activities, scheduling, or even changes in the weather.

OSU project staff members met with and worked with the instructors weekly, often discussing individual learners and specific curricular questions. Separate meetings were held to work through other issues such as recruiting. In a February, 1991, visit, the external evaluators made it clear that the one-on-one tutoring program, which had been instituted largely due to a belief among some personnel at Inland Fisher Guide that confidentiality was essential, was not reaching as many hourly employees as could benefit from the program.

In the spring of 1991, efforts were mounted to serve larger numbers of learners. Fortunately, the Joint Activities Committee allowed for some on-the-clock instruction for Jobs Bank employees. Responding to a request from the plant, the instructors conducted workshops for Jobs Bank employees during some of their "down time" from production. Learning styles, problem solving, and metacognitive skills and brainstorming techniques were demonstrated and delivered to approximately six groups (appendix I). Instructors and project members also conducted two-hour workshops that were offered off-work time without pay to any employee. The instructors produced and posted notices in the plant to publicize the workshops. The workshop titles were:

Read to Remember
Write Right
Thanks for the Memory
Study Skills
Estimate the Possibilities
Train the Trainer

Development and Delivery of the Six-Week Course

Around the same time, the three instructors planned and executed a proposal to develop a six-week course (appendix F) within the program which would focus on the workplace literacy needs identified earlier and also fit the learners who enrolled in the course. The proposal was the blueprint for the first Six-Week Basic Skills Program begun in September 11, 1991, and offered on work time for hourly employees. Employees who applied were pulled off the job and into the classroom with job replacements from the Jobs Bank. Cooperation with the Jobs Bank Committee, a group of management and union representatives who schedule the duties of Jobs Bank employees whose work areas are temporarily down, was crucial to being able to institute the classes. Funding for the employees to "learn on work time" came from the GM corporate funds for Jobs Bank employees, rather than from the IFG division of GM.

In this way, the emphasis in program delivery was modified from individualized, one-on-one, off-work time to the exact opposite: large and small group, a multi-faceted curriculum, on-work time. Two six-week groups were completed between September 15, 1991, and December 20, 1991. Group One had 15 participants, Group Two had 17. Group Three (15 people) completed the grant term, running from January 13, 1992 through February 21, 1992.

Employees had to apply for the program. They were interviewed by the instructors and given math and reading assessment tests (ABLE) to check for eligibility. The target employee was of mid-level ability in math, reading, and writing skills in terms of those who applied.

Approximately 25 percent of applicants were GED candidates, and 64 percent of selected participants (all three groups) were GED candidates. Participants who were selected signed a contract to guarantee participation and cooperation in the classroom. Nonproductive employees could have been removed from the program, but this did not occur.

For obvious reasons, learning on work time was a "hook" for many employees. Many could not visit the LLC off-work time due to personal obligations. Others were looking for a "free ride." Others just wanted a "kick start" to remind them that they could learn before they went on to bigger and better things. The six-week program was organized, information-packed and diverse, and it required participation by doing projects and assignments. No employee squandered time in the classroom without learning.

Evaluation of Program

Program Evaluators Jorie Philippi and Larry Mikulecky stayed in contact with the project staff by visit, phone, and fax. Following initial meetings with some of the OSU staff at 1990 spring conferences, both evaluators visited OSU and IFG in three, 2-day site visits over the course of the project. The focus of discussions was specification of program objectives and implications for implementation. An agenda for interactive response was also established. Subsequently, assessment and curriculum materials were faxed to the evaluators for review and numerous telephone exchanges took place.

Project staff worked with the external evaluators to gather tangible and useful information concerning the extent to which the overall program objectives were realized. Participant portfolios were set up for both instructional and evaluation purposes. Records were maintained with information on all learning sessions for both program improvement and summative evaluation. The instructors kept a running list of activities and competencies in each participant's file. Examples of learners' work were dated and filed for future reference. Instructors were also required to keep track of each learner's time so the LLC coordinator could report the hours to payroll for employee compensation. Index cards were used containing the employee's full name, social security number and time clock number. Time spent in the LLC was logged in 1/4 hour increments.

Recommendations following the site visits guided additional project assessment activities that were defined and undertaken by project staff. As explained earlier in this report, changes in the employee goals of the Inland Fisher Guide plant changed the context and working parameters of this project. The original intent was to set performance indicators such as productivity data (e.g., cycle time, scrap, rework, etc.) with Inland Fisher Guide/UAW personnel, as benchmarks of instructional impact. It was thought that if entire synchronous work groups could take part in the program, such measures would be feasible. It became necessary, well into the project, to readjust the impact measures to reflect the reality of what was essentially a voluntary open-entry/open-exit program, augmented after September, 1991 by the six-week classes.

On-site evaluation activities were organized around the following five basic questions:

1. What characteristics define the Basic Skills/Literacy Program and the workshops?
2. Who are the attendees?
3. What are the pre- and post-indicators of progress?
4. What do learners say about their own progress?
5. What do others, such as supervisors, say about learners' progress?

The document, "Evaluation Questions To Guide Data Collection For IGF/UAW Project," (appendix J) details the specific information sought, as well as which data collection instrument was intended to be the source for the information to be gathered around the above key evaluation questions.

Following the establishment of the key evaluation questions, it was necessary to develop instruments and procedures for collecting and summarizing the data in addition to those already established for student intake and diagnostic purposes. In order to aggregate and summarize data across categories, the LOTUS 1-2-3 spreadsheet software was employed, using assigned codes for information such as goals (short/long-term), self-esteem, years of school, instructional emphasis, and so forth. Demographic information, scores, participation dates, contact hours, and information were compiled in the LOTUS 1-2-3 spreadsheet for summary. Once the data were collected, coded and entered, it was possible to examine the data for patterns and to group the learners into goal, instructional emphasis, and quality/quantity of progress categories so as to select the best approach for evaluation.

Once the LOTUS system of data collection was underway, additional activities (appendix J) related to collecting outcome data were undertaken by project staff as follows:

1. An anchored Rating Scale was developed and administered to reflect teachers' perceptions of students' progress.

2. An anchored Advisor Rating Scale was developed and used to gather plant personnel perceptions of changes in workers resulting (in part) from experiences in the Lifelong Learning Center. Interviews were conducted by OSU personnel only after securing permission from the learner.

3. A questionnaire, IFG-UAW-OSU Lifelong Learning Center Evaluation, was developed and administered to participants mid-way through the program (when possible) and at the conclusion of individualized or class programs. This or a similar instrument was used to collect responses to workshops.

4. A writing sample format was developed to accomplish two purposes: (1) provide a perspective on how the student/worker perceived personal and worklife changes as they may have occurred as a result of contact with the Lifelong Learning Center, and (2) illustrate changes in written expression.

5. Attempts were made to locate missing information on learners who left the program early, and to collect fugitive comments by and about learners regarding their progress/change/perceptions.

6. Parameters and procedures were established for developing learner profiles (case studies) for one non-reader, mid-level reader, and upper-level reader. Math subjects were selected using the same criteria. The objective of each learner profile was to illuminate the degree and nature of change in communications and math capacity of (learner x), and would follow, but not necessarily be limited to, the previously agreed-upon evaluation questions.

Results of the above data collection efforts were noted by project staff for purposes of modifying programs where applicable, then sent to the external evaluators for analysis. In addition to the above procedures, a system was established to keep rough track of how teachers divided their time among the instructional, preparation, public relations, and clerical tasks. Instructors completed the Instructor's Activity Log (appendix Y) on a bi-weekly basis.

Dissemination of Program Information

Dissemination of program information was undertaken for several purposes:

- to raise the level of program awareness within the plant to gain support and understanding as well as to reach potential learners
- to inform the local community, especially the areas in which large numbers of plant employees live, so that families and friends might lend support
- to share information with other parts of General Motors and the automotive industry for potential adaptation/replication
- to establish a dialogue with others planning and conducting workplace literacy programs so as to give and to gain assistance

Appendix B contains material related to dissemination. The following material describes the dissemination activities.

Publicity Within the Plant and Throughout General Motors

Much of the in-plant program publicity has been described in the section of the report on recruiting. The in-house newsletter, **The Buckeye Bulletin**, was the primary communication vehicle, although the project staff recognized that use of this mode depended on reading skills. Articles in this one-page bulletin were brief and to-the-point, usually giving information about an event or offering, but occasionally using a puzzle or other type of attention-getter. A milestone was reached when learners from the LLC began writing articles about their experiences for the **Buckeye Bulletin**. In addition, one learner's story was submitted by plant personnel to **GM People**, a corporate employee newsletter.

A booklet describing LLC programs was developed by LLC staff. Fliers with program information were regularly sent out and posted on bulletin boards throughout the plant.

Program information was shared with General Motors and the automotive industry largely through personal contact. Representatives of the corporate-wide training division visited the plant to hear about and see the program, as did the Training Director of GM-Holden Australia, with whom ongoing regular communication has been established with a view to cooperative future activity. The union and management training coordinators attended several meetings and conferences at which they were able to share program information.

Press Releases and Articles

The opening of the LLC was the occasion for relatively broad press coverage. A descriptive article was sent to the city's major newspaper and several smaller ones, as well as to the local radio and television stations.

The Columbus **Dispatch** printed an article about the opening, and the event was shown on the local television that evening. Media coverage of the opening was considered by the staff to be favorable and positive. However, a month later, another local television channel included a very brief clip of an interview with the IFG training director as part of another news story. The clip, taken out of context, seemed to focus on employee illiteracy, an image that all the program staff had been assiduously avoiding. The lesson learned by the staff was the need to redouble cautions when working with the media.

Articles about the program have appeared in the following publications:

- **Focus on Education** (The Ohio State University College of Education, June 1990)
- **Buckeye Bulletin** (Inland Fisher Guide newsletter; July 5, 1990)
- **Centergram** (Center on Education and Training for Employment, September 1990)
- **Columbus Dispatch** (September 5, 1990)
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Presentations at Conferences and Association Meetings

In response to requests for information, the program has been highlighted in the following presentations:

- "Literacy in the Workplace," Insurance Education Day, Columbus, April 1990 (Johanna DeStefano and Sandra Pritz)

- "DACUM and Workforce Basics," Eastern Regional Competency-Based Education Conference, Baltimore, May 1990 (Sandra Pritz)

- "Workplace Literacy Audits," Rhode Island Department of Education Professional Development Institute, Providence, June 1990 (Sandra Pritz)

- "Workplace Literacy: Its Impact on HRD," Local Chapter of National Society for Performance and Instruction, Columbus, August 1990 (Sandra Pritz)

- "Lifelong Learning for World Class Manufacturing," Ohio Literacy Conference cosponsored by Ohio Association for Adult and Continuing Education and Ohio Literacy Network, Columbus, September 1990 (Susan Imel and Bill Dowling)

- "A Team Approach to Upskilling a Manufacturing Workplace," 1990 American Society for Training and Development, National Conference, Baltimore, October 1990 (Sandra Pritz)

- "Successful Workplace Literacy Programs: Typical Problems Encountered and Some Practical Solutions from Practitioners," International Reading Association Second North American Conference on Adult and Adolescent Literacy, Banff, March 1991 (Johanna DeStefano; session organized and chaired by Jorie Philippi)

- "Lifelong Learning for World Class Manufacturing," Commission on Adult Basic Education Conference. COABE is affiliated with the American Association for Adult and Continuing Education, Hartford, April 1991 (Susan Imel and Sandra Pritz)

- "Workplace Basics: An Instructional Perspective," Annual Conference of the Ohio Association for Adult and Continuing Education, Columbus, April 1991 (Susan Imel, Bill Dowling, Margaret Girkins, Janet Collins, and Pat Connor)

- "The Development of Another GAP: A Sociolinguistic Approach to Workplace Literacy Assessment," International Reading Association Annual Conference. Adult Literacy Special Interest Group symposium on assessment of adult learners. Las Vegas, May 1991. (Johanna DeStefano)

- "Workplace Literacy: Lessons We've Learned," Work Now and In the Future, conference sponsored by the Northwest Regional Educational Laboratory, Portland, November 1991 (Susan Imel)

- "Partnerships for Integration of Academic and Workplace Education," American Vocational Association Conference, Los Angeles, December 1991 (Sandra Pritz)

- "Putting the Workers in Workplace Literacy," Commission on Adult Basic Education Conference, Hartford, April 1991 (Sarah Newcomb and Sandra Pritz)
- "Partnership Patterns for Workforce Productivity," American Society for Training and Development 47th National Conference and Exposition, San Francisco, CA, May 1991 (Ray D. Ryan, Sandra Pritz, Mark Pierce, and Ralph Francisco)
- "Planning and Implementing a Workforce Basics Program," 1991 Mid-American Competency-Based Education Conference, Columbus, June 1991 (Janet Collins and Sandra Pritz)
- "Workforce Basics: Using the DELTA Approach," 1991 Mid-America Competency-Based Education Conference, Columbus, June 1991 (Sandra Pritz)
- "Developing a Curriculum for a Workplace Literacy Program," annual Conference of the Ohio Association for Adult and Continuing Education, Columbus, April 1992 (Johanna DeStefano)
- "A diagnostic, patterns approach to spelling instruction for adults," Midwest Conference of Advances in Business Communication, Lexington, April 1992 (Johanna DeStefano)
- "Developing and using a functional context-based literacy assessment instrument in the workplace" at the International Reading Association annual convention, Orlando, May 1992 (Johanna DeStefano)

In addition to formal presentations, both OSU and IFG staff responded to a number of written requests for information and requests for informational meetings. A number of visitors and inresident scholars at the Center on Education and Training for Employment were given presentations about the program, and several of these people requested and were taken on a tour of the IFG plant and/or training department.

SUMMARY

The experience gained through this project should be of benefit to others seeking to address literacy needs of the workplace through similar collaborative efforts. The following summary comments and recommendations derive directly from project staff involvement, including instructors. It is to be hoped that these recommendations along with the project support materials appended to this report will be widely disseminated for reference, adoption, or adaptation by other literacy training efforts.

Needs Assessment

The original focus of project needs assessment implied that goals and conditions of the plant would remain stable according to the scenario supplied by IFG/UAW in the original proposal. In retrospect, project needs assessment activities should have gone beyond the identification of gaps in learner literacy and requirements of synchronized manufacturing to include developing a deeper understanding of the culture of the plant, the effect of unionization on decision making, and the independence of workers in such a setting to pursue self-improvement or not. The prevalence of negative attitudes among workers toward job context literacy training were not picked up initially. After the project was implemented, staff members heard workers say words to the effect, "I know I could and should learn to read better, but I feel secure in my job. I am going to retire in a short while, and I don't need to know how to read any better. Furthermore, I have been doing this job to the satisfaction of the company and myself for many years with my present level of reading ability."

Coupled with the above dynamics were the effects of the economic downturn, some of which could not have been anticipated. Jobs changed among the workers. Shifts changed. Workers were moved from job to job as the downturn accelerated. This affected participation and also the needs of the workers. Quite a few expressed a need to prepare for the time they might not be employed at the IFG plant. Many were planning career changes, which produced literacy needs not related to the work they did at IFG, but nonetheless important to their personal and possible future work needs.

Future workplace-based literacy programs will be most effective and efficient if they have mechanisms to sense and register changes in original conditions as well as some flexibility to adapt to the new conditions.

Recruitment

The following recommendations emerge from the experiences in recruiting participants for the project.

1. Do not underestimate the time and effort needed for recruitment, especially if the program takes place "off the clock." Like all adults, plant employees had many conflicting demands on their time and making time for learning could not always take priority. In addition, because learners were participating on their own time, they did not automatically feel that they should spend their time learning using work-related instructional materials.

2. The ambience or culture of the organization needs to be considered when recruiting adult learners. Like other large industrial settings, there is a residue of the old management vs. hourly worker hostility present at the plant. In some ways, recruiting was hampered by a feeling of hourly workers that they were outside the decision-making process, even though the union had been actively involved through the union training coordinator and the Joint Activities Committee.

3. Include representatives from the target population in the recruiting effort. These individuals can provide important insights into what may trigger or deter participation. For example, through peers it was discovered that the location of the LLC in the plant's management section deterred some from participating--even though that location had been selected by the UAW local.

4. As the program develops, include program participants in the recruiting effort. Especially effective are testimonials and personal invitations issued by learners.

5. In a large facility, it is impossible to overpublicize or overpromote the project. Months after its inception, when project staff were sure all employees had heard about the project, many still remained unaware of its existence.

6. Employ a variety of recruitment strategies. Just as advertisers use a range of strategies to reach consumers, so should a variety of recruitment methods be developed and implemented to reach learners.

7. Actively involve instructional staff in recruitment efforts. Prospective participants need opportunities to become acquainted with and feel comfortable with instructors in nonthreatening situations. This is especially true for those who lack self-confidence and suffer from low self-esteem.

8. Provide training and/or orientation for peer recruiters. Although peers may know which employees to target with their recruiting efforts, they may need help in developing strategies for approaching prospective learners. Role playing is one method that can be used to develop such skills. Support for the efforts of peer recruiters should be ongoing.

9. Become familiar with research on participation in adult education. An understanding of the categories of deterrents that inhibit participation can lead to more effective and appropriate recruitment strategies.

Instructor Training

Instructor training tends to be a neglected area in workplace literacy, as well as in most adult education areas. For example, in the literature one often sees a statement like "Select your instructors, introduce them to the materials, and 'turn them loose with the learners.'" Curriculum and instructional strategies go hand in hand. As the curriculum is ultimately carried out by the instructors working with the students, if instructors are not thoroughly trained in the principles and process of the intended curriculum, then another, different curriculum is actually implemented. This potential problem was foreseen for this project, but, in practice, the instructors were not available until they had already begun working with the learners. One cannot simply exhort teachers to implement a workplace curriculum, especially if its basic approaches and methods are unfamiliar to them.

The open-entry, open-exit format worked against the efforts of instructors to implement instruction regarding "uninterrupted, mind-probing techniques." This format was demanded by personnel at the plant because they felt it was the only way to ensure confidentiality to the learners, something they had promised would not be compromised.

Instructors could not spend 30 to 45 minutes with a specific learner, "when 8 learners are working on 8 different skills during the same 2-hour post-shift period and when group discussion was precluded by the confidentiality policy." They had to juggle many people in the learning center in the time period after the end of first shift at the plant.

Curriculum

The quality of the commercial materials available for adult literacy programs with the basic skills, adult focus, and functional work context criteria was found wanting. Unfortunately, the materials reviewed often incorporated some of the least desirable features of school-based materials.

The importance of allocating time to adapt curriculum is a factor that should be recognized for subsequent workplace literacy programs, especially because of the relative unavailability of materials with both a functional context and a critical thinking, problem-solving focus. Moreover, the experience of this workplace literacy project is that the program design should be broad-based enough to include learning from nonwork experiences as well. Many employees--especially if unionized and otherwise "secure"--as has been illustrated in the course of this project and increasingly in the research, do not trust or willingly accept "straight" workplace programs.

Workplace Literacy Activities

Individualized instruction seems most appropriate as a complement to a group learning situation. The extra tutoring enables learners to get help when needed while the advantages of group instruction are retained.

Additional recommendations include the following:

- Pay does not seem to provide sufficient incentive for learners coming to the LLC on their off-work time. Conflicting personal obligations were more likely to keep learners from coming to the LLC than the pay incentive to bring them.

- When one-on-one instruction is to be employed, tight benchmarks of progress might encourage the learner to feel motivated to continue. It seems that assisting the learner whenever he/she feels like coming in tends to result in low numbers served.

- Most participants of the six-week program felt the time was too short. Eight to twelve week options have been suggested for the future. Adults who are reintroduced to the learning environment need time to adjust to or establish the new routine.

- Some learners preferred individual work to group work, but a surprising number felt the opposite. From an instructional point of view, peer interaction in groups was much more beneficial in relating concepts to workplace and daily life applications.

- Learning could be offered in blocks of time through the week over a long period of time. A half-and-half learning time scenario is also a possibility. Employers could contract with employees to offer a certain number of educational hours on work time if the employee will match the same number of hours from his or her own time. In this program, convenience and training on work time seemed to be the biggest motivators for employees.

Evaluation

The changing situation at the plant and the changing goals of the workplace literacy project made the collection of relevant pre-post data extremely difficult. The majority of learners who participated in the individualized instruction had already begun the program under the original goals. It was too late in most cases to gather data responsive to newly defined evaluation questions, so, at the advice of the external evaluators, a retrospective approach was undertaken to develop Instructor and Advisor Rating Scales. While this approach yielded some useful information--e.g., anecdotal comments from supervisors--it provided little of use in the aggregate because of the highly individual approaches employed for learners, the variability of time spent in the LLC, etc., up to that point.

The shift in IFG/UAW goals for the project also, unfortunately, affected the role played by the external evaluators. During the first half of the project, they served helpfully as a consulting resource in the development of workplace relevant materials and other aspects of the functional context-based delivery system of instruction. Given the inability of IFG/UAW staff to follow the original model relating instruction to synchronous manufacturing, the evaluators and OSU staff were faced with the urgency to redevelop the assessment system, install it, and gather the hoped-for information by the end of the project. By the time the three seemingly effective and highly popular six-week classes were developed and carried out (with the final one ending on February 21, 1992), the timeframe established for program evaluation had passed, and the effort and effectiveness associated with this event went relatively undocumented in the evaluators' final report. However, it is known that 47 additional learners were served (a total of 600 contact hours) and that all but a few showed pre-post gains in both math and communications (ABLE).

One intervention recommended by the external evaluators was to shorten and simplify the discussion and sign-off processes required of the teachers by freeing them to implement recruiting and instructional ideas as they saw fit within the political and logistical framework of the plant. At the same time, the external evaluators established a separate line of communication with the teachers at the plant, requesting materials and results from them directly. While this plan had some value in expediency, it resulted in confusion and some loss of control over which documents were or were not received/mailed, and by whom, ending up in some casualties and some repeat shipments.

Conclusion

Forming a university-industry-union partnership to undertake the planning and establishment of a Lifelong Learning Center in a large manufacturing plant is a significant challenge. It is clearly not for the faint-hearted, the inflexible, or those without deep grounding in their disciplines. All parties to this partnership were important and needed, and they were called upon in unanticipated ways.

The project staff that embarked on the project had high expectations. They did not even begin to foresee the enormity or nature of the changes they would encounter. Certainly a plant "culture" can be very complex, and sensitivity to it all-important. Although deep initial needs sensing may be helpful, all antennae must be out and receptive so that ongoing adjustments can be made in response to change.

In some ways, this project became a study in resourcefulness under a variety of challenges. It also established a viable Lifelong Learning Center and left it with a program that both employees and their supervisors seemed to perceive as helpful. The Joint Training Coordinator considered that to be a milestone, as well as the evolution toward instruction on work time. The plant manager, Harry R. Lambert wrote this at the end of the project:

> The birth of the Lifelong Learning Center made it possible for IFG Columbus to take a quantum leap forward....
>
> We were recognized as a leader in this endeavor by many including the Columbus Area Labor/Management Committee. The people involved from OSU as well as the UAW and other IFG people have done a great job of launching this program, continuing, and looking to the future. It is with great pleasure as I see these people utilizing the facility and the programs to open up new opportunities for them as individuals as well as helping our plant to grow. For the first time in many cases, these people feel good about their accomplishments and now are smiling both inside and out.
>
> I am proud that I could be a part of this great endeavor.

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EXTERNAL EVALUATORS' REPORT

Ohio State University/Inland Fisher Guide-GM/UAW Workplace Literacy Project

Evaluation Report

FINAL REPORT

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Introduction

Background: The Inland Fisher Guide-GM/UAW Local 969 Workplace Literacy Program at the Columbus, Ohio facility was developed in conjunction with staff members from Ohio State University College of Education and its Center on Education and Training for Employment, primarily through funding provided by a grant award from the U.S. Department of Education. The program operated as a national workplace literacy project demonstration from May 1, 1990 through February 29, 1992 to determine the effectiveness of the site's proposed workplace basic skills training model.

The need for this program grew from a recognition by both Inland Fisher Guide-GM management and representatives from UAW Local 969 that the pressures of competition in a global marketplace have accelerated the pace of change in manufacturing environments. The expanding and shifting responsibilities of a workplace in transition from Taylorism to a Total Quality Management system via self-directed cross-functional work teams, along with increasing technological demands and reduced production cycle times, have created an interest among employers and workers alike to enhance the workplace basic skills needed to meet this challenge. Because technical training-specific courses do not give workers a broad-based knowledge of team communication, problem-solving, critical thinking and learning-how-to-learn concepts and competencies, Inland Fisher Guide determined the need for an instructional program that would provide workers with workplace basic skills applications that are transferable and adaptable in a changing work environment.

Inland Fisher Guide-GM/UAW and Ohio State University began discussions early in 1989 to foster the sharing of information and to clearly define company/ worker needs and agency responses. This careful exploration of possibilities resulted in their partnering to apply for federal grant monies to provide an on-site program. Managers and union members overseeing training and production activities at this location met with the university program developers and formed a planning team. It was the responsibility of this team to ensure that the program directly related to the competencies needed in the workplace and responded to the needs of the targeted assembly and manufacturing worker participants. To this end, the team was committed to gathering data for performing a "front-end analysis" in order to assess the job-related basic skills needs the of plant workers. They also determined the program goals, length, schedule, and implementation plan.

The developers of the program, Ohio State University, then custom-designed, created or adapted, and delivered the instructional materials. The Lifelong Learning Center was opened as the plant's on-site delivery facility and one-on-one instruction was made available to voluntary worker participants. A series of mini-seminars on topics requested by workers were also developed and conducted. Ohio State University, as the grant recipient, contracted with Performance Plus Learning Consultants, Inc. to serve as a third-party evaluator throughout the project.

Purpose of the Evaluation:

Ohio State University has requested this third-party evaluation of the Inland Fisher Guide-GM/ UAW Workplace Literacy Demonstration Project to assess 1.), the extent to which the program's goals and objectives have been accomplished, and 2.), the extent to which program development and implementation proceeded as planned. Specifically, the evaluation objectives to be investigated were:

- on-going identification of the program's strengths and areas still needing any improvement throughout the life of the project;
- evidence that program content and design were developed from needs assessment including comparative analyses of worker needs and of high priority current and future job requirements at Inland Fisher Guide-GM;
- evidence that development and adaptation of job context instructional materials based on results of the needs assessment occurred;
- evidence of a smooth instructional flow of activities within the curriculum content and delivery, reflecting a sound developmental approach to mastering those literacy skills necessary for workers to meet the literacy levels of their current job requirements and to adapt successfully to a reconfiguration of their jobs through enhanced literacy;
- evidence of the creation of a supportive environment for literacy training in which auxiliary needs of workers are identified and met, in accordance with individualized educational plans that include support services;
- evidence of the development and use of record-keeping and documentation systems, including collection, interpretation and reporting of data on program

development and implementation activities and on individual goals and progress of participants; and

- evidence of successful program implementation through the use of appropriate processes for participant recruitment, class scheduling, development of individual education plans, curriculum delivery, pre- and post-assessment, and instructor training and support, that are academically and organizationally sound and that match with program goals.

Additionally, recommendations were requested on the issues and concerns about program replicability, limited to data gathered from observations, pre- and posttest results, anecdotal records and interview information.

Description of the Program to be Evaluated:

The Inland Fisher Guide-GM/UAW Workplace Literacy Program was housed in the on-site Lifelong Learning Center, a facility operated on an open-entry, open-exit basis for voluntary worker participants to attend individualized learning sessions and a series of 1- or 2- hour workshops on their own time. The Center was open from 6:00 a.m. to 5:30 p.m., Mondays through Wednesdays; 8:30 a.m. to 9:00 p.m. Thursdays; and 8:30 a.m. to 3:30 p.m. on Fridays. It was also open from 12 midnight to 2:00 a.m. Entering participants were interviewed and assessed with the ABLE Test and a staff-developed set of Cloze tests to determine personal goals and ability levels. This was followed by development of an Individual Education Plan and counseling sessions for each participant. Participants then worked independently with regular input and guidance from one of three Center instructors.

According to the published description of the program, the design of the course was structured to meet job-specific basic skills application needs. On-site investigation and job analysis conducted by Ohio State University College of Education and Center on Education and Training for Employment staff indicated that the most widespread need among IFG-GM/UAW employees was for instruction that provided a solid foundation of communication and problem-solving skills for enhancing teamwork for assembly all purpose operators (APOs). This became the initial focus of program content. Instruction was related to specific competencies identified by the program developers as those communication or math strategies needed by competent workers in conjunction with performance of job tasks for APOs and throughout the plant.

Instructional materials for use in the Center were centered around staff-created reading, math, and writing lessons employing some industry- and plant-related print materials, such as trade journal and in-house newsletter articles, along with examples taken from job-specific materials such as training and safety manuals, contract information, charts, company forms, and timekeeping information. In addition, excerpted topics were utilized from commercially published adult basic education workbooks, such as Conover Company's Math on the Job and Reasoning Skills on the Job.

Approximately 20 lessons were submitted to the evaluators for review. Each was labeled as fitting into one of two categories: "Workplace Communications" or " Workplace Mathematics." Most lessons were accompanied by a one-page cover sheet that served as a lesson plan for instructors. It contained the job task reference, learning objectives and outcomes for the work task, learning activities, and the materials to be used, along with a listing of skills and processes to be addressed, and learner/instructor follow-up suggestions. Each lesson was 2-5 pages in length and contained learner exercise sheets and a copy of accompanying reading materials where appropriate. Lessons reviewed by the evaluators included the following topics:

Communications:

- APO Manual: The Customer
  (use reading locator skills for job-related materials)
- APO Manual: Skills Needed on the Job
  (select part of a text to complete a task)
- News article on Drug Emporium Company
  (identify details in text)
- Charting Easy Book
  (identify chart parts and interpret information from charts)
- Understanding Learning Styles
  (complete survey; draw conclusions)
- Scholarly article: The Inner Critic
  (compare, contrast; predict content; practice writing process)
- Routing Sheets
  (locate information on a form; follow sequential directions)
- Specifications and routing sheets
  (recognizing technical abbreviations and task-related terms)
- Alphabetical Order
  (sequence, compare, summarize, spell, reference)

- Newsletter article: Saturn Production Hits Snags
  (read for details)
- Common Errors in Die Setup
  (cause/effect)
- From a Tree Grows a Paper
  (sentence and paragraph structure)

Mathematics:

- Machinist 19 (exercise sheets and word problems only)
  (recognize place value; round up and down)
- Machinist 20 (exercise sheets and word problems only)
  (express numerical values as fractions)
- Machinist 21 (exercise sheets and word problems only)
  (reduce fractions to lowest terms)
- Machinist 22 (exercise sheets and word problems only)
  (convert mixed numbers to improper fractions and vice versa)
- Time and Decimals/ Understanding Pay Stubs
  (convert decimals to minutes; calculate transition time, down time, production time)
- Implementing SPC Procedures
  (divide; calculate percentages)
- Calculating the Daily Rate Sheet
  (basic math functions plus fractions)

During the second half of the demonstration, UAW Local 969 representatives, who previously had expressed concerns over confidentiality, consented to allow the Center to offer small group workshops addressing topics in which participants had indicated interest. Project staff designed and delivered a series of one- and two-hour workshops presented from March through July, 1991. Workshop titles and stated goals included:

- Earn College Credit for Your Work Experience
  - to introduce employees to alternative college credit programs

- Skills Preparation for Computer Literacy
  - (no goal stated)

- Study Skills
  - to demonstrate useful tips for surviving a training

class or a college course

- Skills Preparation for Principles of Refrigeration
  - to demonstrate useful tips for surviving a training class or college course
- Thanks for the Memory
  - to demonstrate strategies for "exercising" our memories
- Write Right
  - to discuss writing as a process, learn a format for writing memos; be able to recognize and write "good" memos
- Read to Remember
  - to learn how to summarize and analyze reading materials using various reading strategies
- JOBS Bank Workshop Evaluation
  - to evaluate training workshops JOBS Bank employees attended all week and to have them make suggestions for future workshops
- Learning Styles
  - to have employees take inventories to determine their individual learning styles and discuss the implications for learning in academic and workplace settings
- Lifelong Learning Center Overview
  - to introduce trainees to the resources available at the LLC
- "Ask Me"
  - to assist trainers in identifying and recruiting employees who may need help with basic skills.

An additional workshop, "Estimate the Possibilities,"- to help employees recognize uses of estimation and the transferability of math skills both on the job and in every day life, was also created and delivered by the OSU team, but did not appear on the list of workshops forwarded to the evaluators.

Method

Design:

The evaluation of the Inland Fisher Guide-GM/UAW Workplace Literacy Demonstration Project employed a modified version of the Context-Input-Process-Product (C.I.P.P.) model, (Stufflebeam & Guba, 1971). This method of evaluation was chosen by the evaluators as the most suitable tool for investigating the evaluation objectives, (see pages 4-5), because it examines program effectiveness through structured analysis of the cohesiveness of program goals, components, and operations, independent from comparisons to outside standards or other programs.

The C.I.P.P. model was used to analyze:

- Context (i.e., shared goals and philosophy of key personnel and participants);
- Input (i.e., resources, including personnel, materials, and facilities);
- Process (i.e., congruence of observed instructional development and delivery with program goals and research on instructional effectiveness); and
- Product (i.e., indicators of program effectiveness).

Participants:

The participants in the program were over 100 industrial assembly workers employed by the Inland Fisher Guide-GM manufacturing plant in Columbus, Ohio. A brief description of the composite average worker profile is provided below for reference.

> Program participants were Inland Fisher Guide-GM employees, recruited by plant training and management personnel, as well as by UAW Local 969 representatives. Program participation was voluntary, with the exception of the JOBS Bank Evaluation Workshop. The composite profile of the average learner was a white male worker, 39.2 years of age, with a high school diploma, who had worked for GM for more than 16 years. Forty-nine percent of the evaluation sample were males. Information on participants' job classification titles was not collected. (See Figure 1 for additional details on learner demographics.)

There were three instructors who facilitated the individualized instruction strand of the program on site. The composite profile of the average instructor was a female with an education degree, and an average of 5 years teaching experience. All had previous experience working with adults and two hold Masters degrees. Workshop presenters also included staff from Ohio State University College of Education and Center on Education and Training for Employment.

Because of the nature of the evaluation design, the focus of evaluation activities extended beyond the traditionally-held concept of "participants" to also include program administrators, the employer, and developers.

Instruments:

Data for this evaluation were gathered via learner surveys, structured interviews with program personnel, supervisor ratings and confidential interviews, and formally-documented observations of instructional sessions. (See Appendix A for sample forms.) Additionally, data were gathered from detailed analysis by the evaluator of program documentation, instructional materials, and learners' work, (i.e., pre- and posttest scores and learners' records).

Figure 1: Demographic Data on Program Participants (n = 74)

Gender		**Age**		**Ethnicity**	
Male-	51%	Under 30 yrs. old-	0%	Black	27%
Female-	49%	31-40 yrs. old-	34%	Hispanic	1%
		41-50 yrs. old-	51%	White	72%
		51-60 yrs. old-	15%		

Education Levels		**Job Seniority**	
Did not complete High School	18%	10 yrs. or less with GM	0%
High School Diploma	65%	11-15 yrs. with GM	42%
GED	7%	16+ yrs. with GM	56%
Some College	24%	Retired	1%
Previous Technical Training	31%		

Procedure:

Following initial telephone conversations with key personnel at Ohio State University and a meeting with staff representatives in Atlanta, Georgia in May, 1990, to establish evaluation objectives, the evaluators conducted the activities listed below:

Atlanta, Georgia in May, 1990, to establish evaluation objectives, the evaluators conducted the activities listed below:

1. Development of Evaluation Data Collection Instruments:

- Forms created and/or reviewed for Participant Survey, Instructor Interview, Instructor Anecdotal Records, Learner Individual or Focus Group Interview, Classroom Observation and Employer/Supervisor Interview.

2. On-site interviews with training and production managers, Mark Pierce and Harry Lambert; with union representatives, Ralph Francisco and Debbie Ferrelli; with instructors, Margaret Girkins, Pat Connor, and Janet Collins; and project manager, director, principal investigators and staff from Ohio State University, Sandra Pritz, Nancy Puleo, William Dowling, Susan Imel, and Johanna DeStefano. (Site visits occurred June 25-26, 1990, February 25-26, 1991, and August 1-2, 1991.)

3. On-site observations of participants engaged in instruction at the Center during the second cycle of instruction.

4. Consultation with curriculum developers concerning instructional units and assessment instruments and feedback on how to strengthen activities and items contained in them.

- Development of local rating strategies for assessment of learner progress. PPLC designed a scoring system for analysis and weighting of varieties of individual responses, for use by site instructors in identifying acceptable progress rates by participants with different entry-levels of ability.

5. Off-site analysis of materials:

- Review of documented Literacy Task Analyses conducted at plant by Ohio State University staff with competent Inland Fisher Guide-GM workers as they performed required job tasks in areas targeted for use in content of instructional materials.

and to determine the potential effectiveness of the design and instructional content.

6. Communications and Operations:

- Regular telephone contact with Ohio State University through conversations with project director, principal investigators and manager, to discuss progress in the evaluation activities and preliminary findings.
- Interim Process Reports describing evaluation activities, submitted to Ohio State University following each of three site visits.
- Regular updates to the project manager and director on progress of data submission by site and arrangements for collection of outstanding forms and assessment instruments, June 1990 to February 1992.
- Final Evaluation Report Draft submitted to Ohio State University, April, 1992.
- Final Evaluation Report revised and submitted to Ohio State University, May 15, 1992.

Results

Program Context:

To what extent are goals and philosophy of the program shared by key program personnel and learners?

The usual workplace literacy program evaluation includes an a fairly straight-forward evaluation of the degree to which program participants, sponsors, and developers demonstrate a shared understanding and endorsement of proposed program goals. Such a straight-forward examination of the current program was not possible for a number of reasons. Due to a variety of unforeseen events, program goals changed and evolved to a great extent throughout the life of the program.

Original Goals: In the funded proposal, three project objectives were delineated. These were:

1. To improve the literacy levels of employees relative to their current job requirements;

2. To enable employees to adapt successfully to a reconfiguration of their jobs through enhanced literacy; and

3. To build a positive environment for literacy training by identifying and assisting in meeting the needs of employees for support services.

In the early stages of the project, there was substantial agreement among most Ohio State University program personnel, UAW Local 969 representatives, and Inland Fisher Guide-GM management representatives that the major emphasis was to be on the first two of these three objectives, (i.e. improving the literacy levels of employees to meet the projected needs for employees to participate in quality assurance procedures and to fill a new, more demanding job description of All Purpose Operator of plant machinery). There was some early disagreement among Ohio State personnel about the best way to accomplish this goal. The disagreement revolved around the degree to which the program would be involved in custom-designing literacy training matched to the new jobs or meeting individually stated learner needs whether they immediately related to the job or not. The second position assumed literacy gain in any area would, to some degree, transfer to improved job performance.

Eventually, the decision was made to focus primarily upon literacy training and evaluation very closely associated with workplace demands and to a lesser extent with more general learner goals related to literacy requirements outside the job. Following this consensus, a good deal of effort was invested by program personnel in

- using the DACUM procedure to task analyze the All Purpose Operator job;

- gathering and developing instructional material related to the automotive industry and the APO job tasks;

- custom-designing assessment measures using job related materials and tasks; and

- developing plant-specific indicators of changes in worker productivity as a result of workplace literacy training.

Standardized tests and additional questionnaires were developed to measure changes in employee general literacy abilities and changes in literacy habits at home and the workplace.

The original proposal had estimated that nearly 500 employees were in the pool of workers experiencing literacy difficulty and that 100 of these would volunteer to enroll in workplace literacy training. During early stages of program planning, management representatives even suggested that it might be possible to encourage entire work-teams to take training so that assessment could measure improvements in team productivity in relation to previous work and in relation to a control group not receiving training.

Problems in Maintaining Original Goals: During the first six months of program operation, several problems became apparent. A variety of corporate difficulties (some associated with the recession) delayed the implementation of quality assurance and APO training. Management was not able to follow through on providing an intact work team for training. Recruitment for the voluntary program was encouraged by union and management, but was reported to be viewed with some suspicion by some employees. Only a very small fraction of the originally projected 100 participants had enrolled during the first six months and many of those enrolled for personal reasons having little to do with changes in the Fisher-Inland Guide workplace. Some were interested in preparing for outside education and transition to other jobs beyond the current employer, some were interested in help with general literacy problems involving functional literacy at home, some had no clear goal beyond general self-improvement, and most were suspicious that the changes in the workplace would ever occur or that they personally would have access to the new jobs. Only a few participants fit the original goals agreed upon by union, management, program providers, and federal funders.

In addition to all these difficulties, lay-offs and temporary plant shut-downs tended to delay program implementation and subvert attempts to recruit learners and hold on to those already recruited. At the program mid-point, several major reassessments were made after consulting with major program stakeholders including management and union representatives and instructors who had developed clear ideas and opinions about the needs of learners who had volunteered for training.

Response to Problems: Ohio State University personnel were faced with a number of mid-program decisions to make. The population they had in training differed substantially from the population they had projected. The demands of the workplace were also somewhat different from what they had projected during original program planning meetings and there was increasing difficulty in obtaining information about the progress of APO training. In fact, management support was reported to be increasingly difficult to secure. The union representative, presumably reflecting opinions of employees, reported during mid-program interviews that workers didn't want to read about work when they came to the Learning Center-- they wanted a break from having to read about work. This change in goals was not acknowledged to be a change.

The Ohio State University project team decided to respond to the problems in a number of ways. Pre- and post-testing related to workplace literacy goals continued as did instruction using workplace materials whenever use of such materials made sound educational sense. In cases where the learners in class did not have jobs calling for much literacy and didn't perceive themselves as likely to have such jobs in the near future, alternate educational plans were developed based on learner-expressed interests. Instructors were given a good deal more latitude in determining these individual curricula with the Ohio State group taking a support role. This differed from the first half of the program in which Ohio State personnel took a lead role in analyzing jobs, developing curriculum and training instructors in how to use materials to meet program goals. Surveys of worker interest performed by instructors, for example, led to the offering of a series of workshops, each only repeated several times during one month, on study skills, memory, computer literacy, and other topics.

Union and management representatives took on larger roles in recruiting workers for workshops and for training. This ranged from more direct contacts with individual workers to strongly encouraging workers who were currently in the "job bank" (and available for reassignment) to attend workplace literacy training.

Interviews with stakeholders and analysis of meeting notes reveal that throughout this difficult transition, a good faith effort was made by all involved to "make the program work." As a matter of fact, during some months the number of person hours spent by stakeholders in planning and reaching accommodation with each other was a good deal higher than the actual number of learner contact hours.

Program Input:

What resources were available to the program during development and implementation and to what extent were they used effectively?

This section of the evaluation addresses major resources of the program. It includes program materials, design and appropriateness for the targeted learner population; key personnel qualifications and the match between published program duties; and facilities. It also examines the content and processes used for instructor training. The data presented in this section were analyzed for strengths and weaknesses.

Program materials- The instructional materials were designed after developers conducted and documented both DACUM and literacy task analyses of various job tasks performed by the All Purpose Operators. Examples of documentation released to PPLC for the evaluation were each specific job tasks performed by the operators. Each contained references to communication tasks (i.e., reading and writing applications) and mathematical tasks on the job. When IFG-GM/UAW management and representatives shifted from their original goals for providing APOs with the skills needed to function effectively in teams, the choice of basic skills to include in course content objectives was revisited by the OSU materials development team. Workplace skills selected for inclusion were those that were believed to be embedded in the performance of many job tasks throughout the plant.

Review of the curriculum revealed numerous examples of job materials taken from shop floor and work-related situations. Each session focused on a particular set of skills that had application to the workplace, although all lessons did not utilize job-specific materials as vehicles for instruction. The examples that were taken from workplace materials were reproduced well and up to date. Instructor guidelines for individual sessions included outlined directions that incorporated goals, objectives, and an assortment of suggestions for delivery techniques and follow-up activities.

Because of the originally stated goal to create a learning environment that supported individual participant learning, and because of the changes in plant "climate" throughout the program, the OSU developers also provided materials for developmental adult basic education instruction to individual learners who requested it.

The varying ranges of reading difficulty level of the instructional materials was appropriately matched to the different ability levels of targeted participants. Results of Cloze tests and the ABLE Test administered to incoming participants diagnosed their ability levels in reading and math. A writing stem was also administered to determine writing proficiency. Available pretest results showed the following diverse range of results (n = 45 to 54 testtakers):

ABLE Reading:	Level 1 2%	Level 2 27%	Level 3 71%
ABLE Math:	Level 1 2%	Level 2 33%	Level 3 65%
Cloze:	5th Grade 54% pass	8th Grade 52% pass	11th Grade 33% pass
Writing Stem:	69% pass		

Course developers made every effort to accommodate individual learners with materials and instruction matched to their various levels diagnosed during pretesting. A considerably smaller amount of data was collected through posttesting. OSU project staff and instructors commented that this was due to the difficulty inherent in a voluntary attendance policy. When participants are attending on their own time, under an open-exit policy, and have achieved their learning goals, they usually do not choose to come back for additional sessions just to be posttested.

When asked about the strengths and weaknesses of instructional materials, instructors and OSU developers indicated that, while construction of lessons was very time consuming, they felt learners responded well to their use. The only weakness they perceived was that of not being able to vary instructional techniques to include small group interaction which they felt would enhance participant interest and strengthen overall delivery of the materials. The evaluators were unable to conduct a focus group with learners or interview them individually to determine their perception of the instructional materials, due to confidentiality parameters, down time and layoffs at the time of their site visits, and unwillingness of learners to talk to them about the program.

Key Personnel- The program director, principal investigators and manager were five highly qualified faculty members from Ohio State University. All work under the umbrella of education and have extensive experience; each is an academic leader in his or her field of specialization. The variety of strengths and interests within this leadership group, however, often caused the processes of role definition and arriving at unified, clearly expressed decisions for project direction to be difficult to accomplish. In addition, the time constraints and variable schedules of each of these key players frequently created problems in attempting to: 1., keep close tabs on the constant changes and political climate of the plant; 2., maintain high visibility and availability at the plant; 3., be available as a constant resource to instructors; 4., thoroughly communicate project information to all team members; and, 5., hold group meetings with everyone in attendance.

Plant personnel playing leadership roles in the project included the training manager, the plant CEO, the joint co-chair for education and training and his assistant. The IFG-GM/UAW team members appeared at the project onset to be articulate and interested in its success as a means for enabling workers to learn the support skills for competent performance of current and future critical job tasks at the plant. Each management/union team member also had a level of responsibility in IFG-GM or UAW that enabled him or her to make decisions concerning the project when necessary. These are definite strengths for advisory team members to possess. As the project progressed, however, their ability to fully support program efforts and original goals appeared to fluctuate with plant events and pressures external to the project itself. This weakened the effectiveness of communications with OSU and the workings of the partnership.

Facilities Sessions were conducted in the newly opened Lifelong Learning Center training room, adjacent to plant administrative offices. Scheduled to overlap shifts, the times the center was open enabled participants from two shifts to attend. The room contained moveable tables, study carrels, partitions, and padded chairs, all conducive to independent work; the area was well lit, climate controlled, and carpeted. The only negative comment received from one learner was that he had to walk past office windows of administrators to enter the Center. His concern was that word might reach his supervisors that he was attending. He feared that this might connotate personal weakness or educational deficiency in their eyes and result in a negative impact on his current or future career opportunities.

Instructor Training- Instructors reported that training consisted of discussions with the OSU team members and analysis of individual participant problems in instructional progress. Project directors from OSU reported initial meetings to work out schedule logistics along with distribution of a collection of scholarly articles addressing functional context approach and adult learning. All instructors expressed dissatisfaction with the ongoing inservice sessions and at project mid-point were given more responsibility by the OSU team for solving their own day-to-day problems.

Program Process:

To what extent were program development and observed instruction congruent with program goals and research on instructional effectiveness?

Instructional Organization- The Lifelong Learning Center was operated across shifts on an open-entry, open-exit basis with voluntary participation by participants during non-working hours. It was staffed by three well-qualified, experienced instructors who rotated their schedules to cover all hours of operation. Instructors provided individual instruction and guidance to participants, based on learners' stated goals and diagnostic pretesting and counseling.

The nature of instruction and types of learning activities were determined through interviews with instructors and examination of learner records. Instructors reported that approximately 35% of instructional time was spent working one-on-one with participants. The remaining 65% of time participants worked independently on assigned materials. Individual learner records in the form of folders containing pretest results and exercises from lessons, demonstrated that those participants who attended regularly completed instructor-assigned amounts of work at rates which instructors felt were appropriate. Given the sparse attendance during site visits and the unwillingness of participants to be interviewed by the evaluators, it was not possible to gather learner data concerning types of learning activities and actual engaged time. It is assumed that, given the nature of individualized instruction and the voluntary aspect of attendance, learner engaged time would be quite high.

These factors-- flexible operating hours, qualified conscientious instructors, and appropriate use of instructional time-- indicate that the third stated project goal, i.e., to build a positive environment for literacy training by identifying and assisting in meeting the needs of participants, was supported by the program implementation process.

Instructional Quality- The quality of instruction provided by the materials has been discussed earlier in the Input section of this evaluation. It was, for the most part, quite high. All instructors indicated that they had established good rapport with learners and took an active role in monitoring learner progress, encouraging learners, and providing explanations when necessary. Instructor notes from individual learner counseling sessions indicated careful pre-assessment of learner abilities and attempts to match learning materials with ability levels.

Evidence of documented learner progress toward goals was for the most part subjective in nature. Instructors relied on their own individual experiences for interpreting learner progress. Despite suggestions from the evaluators for creating uniform standards among themselves with which to measure participant growth, no data was submitted in this area. With few posttest scores obtained, the lack of such uniform measures imposed on participant work makes it difficult to conclude to what extent instruction was mastered. Additionally, the evaluators requested the collection of anecdotal information by instructors to provide evidence that learners were applying what they had learned outside of the learning situation. No anecdotal data was submitted by the instructors to support transfer of learning to performance, either in the workplace or in everyday life activities.

Solid judgements of the quality of instructor explanations of concepts are not possible given the fact that private explanations and comments to learners could be overheard in only one instance. In this instance, however, the instructor was able to explain several approaches to reading to locate information in a manner which elucidated the thought processes involved.

There is some evidence that the instructional materials contain appropriate content to enable participants to learn those skills needed for current and future job requirements at IFG-GM; however, there is little evidence to support the conclusion that participants progressed toward mastery of their learning goals. One reason for this was most likely the voluntary nature of the program, which allowed many participants to leave without returning to be post-tested and consequently resulted in the collection of very few sets of pre/post data to determine the amount of content mastery. Another reason was the small amount of time on task spent by any one learner. Although a few learners were reported to have had a little more than 100 contact hours with instruction in the Center, most were reported to have spent less than 30 hours in the Center. Average number of contact hours reported was 27.2 hours, (n= 74). During the last six months of the project demonstration, three six-week courses were offered to participants. These added a total of 600 instructional contact hours for the 47 learners who attended sessions.

Instructional Climate - Many unforeseen and uncontrollable external events impacted on program delivery. These ranged from plant slow downs to the election of a new UAW Local 969 president. Rumors of layoffs caused many workers to be suspicious of the program, claiming that it was merely an attempt to begin mandatory dislocated worker training for plant employees before they were let go. One union representative on the planning team lost a job promotion bid. At mid-point in the project, the training manager told the evaluators he wanted to be sure that this project was "not related to training content or evaluation measures in any way." Changes in key player attitudes for a variety of reasons, evidenced in their comments, appeared to have been related to changes in plant project goals. Whether stemming from personal reactions or tensions due to the recession, the results caused a weakening of the perceived management/labor support for the project by OSU staff and instructors.

There is strong evidence that external events impacted heavily and negatively on the project's implementation process-- in advertising its purpose and content, and in defining and supporting its activities, and in providing a climate conducive to success and growth.

Program Product:

To what extent are there indicators of program effectiveness?

The proposed workplace literacy program had three major objectives. These were:

1. To improve the literacy levels of employees relative to their current job requirements;

2. To enable employees to adapt successfully to a reconfiguration of their jobs through enhanced literacy; and

3. To build a positive environment for literacy training by identifying and assisting in meeting the needs of employees for support services.

Of the 500 workers projected to need workplace literacy support, a goal was set to serve 100 of these workers during the first cycle of the program.

Program planners decided to modify the goals somewhat as a result of a disparity between program goals and the goals of learners personnel were able to recruit. A quotation from program planning meeting notes captures the difficulty.

> *"Concerns have arisen over the Fall about incongruity of the program goals based on IFG-GM's intention to move to synchronous manufacturing and the enrolled learners' goals in coming to the LLC. (The latter has often been related more to post-secondary study or life after retirement than to current job success and productivity.)*
>
> *The decision was made, but continues to be re-opened for*

discussion weekly, to work from the job context with job-related materials, but to meet the other needs as far as possible, by instructors:

1) *overtly pointing out ways in which the skills learned can be applied in non-work settings that relate to the learner goals, and*

2) *making suggestions about home activities and practice that would relate."*

An October memo from Mark Pierce of IFG-GM indicates a change in program goals from the perception of the employer. The memo indicates that in January, 1991, the IFG-GM head of training had discussed the program with another educator who was not part of the project or of the evaluation team. As a result of that discussion and others, the employer dropped the first two workplace specific goals of the funded program and moved toward a program goal of improving general basic skills and enhancing learner self-esteem. The OSU planning team did not become aware of this change until sometime in the Spring of 1991.

In November of 1991, the OSU planning team provided the external evaluators with copies of an interview Protocol designed "to probe learners as to what got them interested in more learning." This interview was to gather information about, "What does the learner say about his/her own progress?" These interviews were to be used to produce 3-6 learner profiles to supplement other pre/post data. Three such learner case study profiles were received by the external evaluators.

Achieving Objectives - The discussion of program outcomes will address the following areas:

- Recruiting target population;
- Improving literacy levels relative to current job;
- Helping employees to adapt to reconfigured jobs through enhanced literacy; and;
- Building a positive environment for literacy training by identifying and assisting in meeting the needs of employees for support services.

Recruiting target population: By the mid-point in the program, it was clear that recruitment of the projected population of intermediate literates experiencing job difficulties was a problem. Of

41 learners who had attended initial meetings with instructors, 26 (65%) were reported to have less than 20 contact hours throughout the life of the program. Seven learners attended more than 40 contact hours and two learners attended more than 100 contact hours of basic skills instruction. Nearly 25% of those attending initial meetings with instructors did not take part in any sort of testing or training. Reasons for this included family problems, retirement, referral to other programs (i.e. GED and independent learning on PLATO computer terminals). Half of those not returning provided no reason.

Long range goals expressed by this initial group differed considerably from funded program goals. More than 1/3 expressed interest in eventually obtaining a GED certificate (some of these left the workplace literacy program to enter already existing GED classes). Nearly 1/2 expressed long range interest in completing community college degrees or retraining for careers outside the automotive industry. A few expressed personal long range goals (i.e. tutoring children or preparing for retirement). Less than 10% expressed either long range or short range goals related to job performance or job restructuring.

Of the initial 41 contacts, only about 2/3 remained long enough to begin pre-testing. Of these, over 70% scored at the 12th grade level or higher on the ABLE standardized reading test. The learners who remained with the program diverged considerably from the proposed population, which was to have intermediate (6-9th grade level) literacy abilities.

Near the close of the project, OSU was permitted to offer small group instruction in the form of three six-week workshops. IFG-GM/UAW had previously balked at group instruction due to union perception and interpretation of participant confidentiality issues. Persistence on the part of the Lifelong Learning Center staff and the OSU team led to IFG-GM/UAW allowing participants to attend the six-week sessions while Jobs Bank members replaced them at their work stations.

Eventually, the program made initial contacts with slightly more than 100 learners as a result of subsequent recruitment efforts and arrangements to develop a special six week class for employees in the job bank (e.g. employees waiting to be reassigned to other jobs). Pre-test scores for 33 learners were made available to evaluators at the program's end in December of 1991. Of the 100 initial employee contacts, it is presumed that the other 2/3 of learners left the program before they could be initially tested. An additional 15 jobs bank employees participated in a six week class and completed pre bank employees participated in a six week class and completed pre and post questionnaires on their reading habits and strategies. During the spring and summer of 1991, the Lifelong Learning Center offered a series of one- and two-hour workshops. Attendance was reported to vary from two to twenty, with an average of nine participants per workshop. A workshop evaluation sheet was developed by the OSU team, but workshop evaluation results were not shared with the external evaluators.

Data from pre-/posttest results for the 47 learners who participated in six-week sessions during the last few months of the program was made available to the evaluators for 32 of these participants. Scores for these session participants indicated an average gain of 6% in reading and 33.5% in math on the ABLE. Identification numbers assigned to these learners indicated that they were all students included in the data for the group of 115 participants cited in the paragraph above. The structure of a finite number of sessions appears to have had positive impact on the availability of pre/post data for collection; it also may have been, along with group interaction and participants' expectations, a contributing factor to the noteworthy levels of gain achieved for this segment of the program.

In summary, the demonstration project apparently made initial contact with more than 100 learners, as it proposed. Using pre-test scores and questionnaires as indicators of continuation, approximately half the targeted number stayed in regular instruction for even a brief time (i.e. long enough to participate in early program pre-tests and questionnaires). Of those who stayed, only a tiny percentage were in the intermediate literacy level projected in the proposal and an even smaller percentage expressed interest in *volunteering* for workplace literacy training.

Improving literacy levels relative to current job: Though several methods for assessing literacy levels relative to jobs had been discussed by the planning team (i.e. comparing the productivity performance of a work team in training to a control group, custom-designed tests based upon job reading tasks, supervisor ratings of employee workplace literacy performance, and instructor rating of the degree which learners achieved short-term and long-term goals), the planning team succeeded in implementing only a few assessment measures. These were:

- CLOZE tests of reading ability using workplace reading samples at three levels of difficulty; and

Pre and post program CLOZE test scores were provided for only seven learners. These learners demonstrated no measurable improvement in ability to read job related materials as reflected in CLOZE test scores. Fifteen learners in the job banks class completed pre and post class questionnaires on the types of material they read, the time they spent reading, and the strategies they employed while reading. Analysis of responses revealed no statistically significant improvement for the group in these areas. Though no statistically significant increase was made, a few learners reported doing *slightly* more reading of charts, signs, training manuals, trouble shooting charts, and work-related magazine articles. There was a similar slight tendency for a few learners to read more home material (i.e. children's magazines, story books, school materials, game instructions, and reading materials). The numbers of respondents were too small to allow for meaningful statistical analysis, however.

Helping employees to adapt to reconfigured jobs: There is no available evidence, other than the slight tendency for a few learners to do slightly more job related reading, that this goal was achieved. This is due, to a large degree, to the fact that the individuals the program succeeded in recruiting into the voluntary program were not really members of the proposed target population. The literacy abilities of learners tended to be much higher than the projected population and their learning goals tended to be either personal or to receive training to move into different occupations (many outside the automotive industry).

In the original proposed program, "reconfigured jobs" meant participation in IFG-GM/ UAW projected synchronous manufacturing and quality assurance procedures. If the phrase "reconfigured jobs" can be stretched to include moving out of the automotive industry, the program *may* have been more successful, though no evidence was gathered to demonstrate this point.

Evidence was gathered from supervisors of 30 learners at the conclusion of the demonstration through interviews that utilized OSU-generated four 0-5 point scales addressing employees' ability to solve problems, participate in interpersonal communication, perform current job assignments and express commitment to total customer satisfaction. (See Appendix for sample instrument.) A sample scale is shown below:

(1) Demonstrates ability to solve problems.

0	1	2	3	4	5
Does not identify problems	Identifies there is a problem	Identifies there is a problem & resources to help solve problems	Identifies possible solutions	Carries out plan to solve problems	Evaluates outcome(s) for appropriateness

The evaluators have no knowledge of how the scales were developed, i.e., with extensive, slight, or no input from the supervisors themselves. The descriptions used to differentiate point values were categorical and did not list specific, observable job behaviors.

OSU reported to the evaluators that confidential interviews conducted with the supervisors of 30 learners yielded the following information:

- 23 learners were rated by supervisors as having demonstrated improvement on at least one of the four scales.
- 10 learners were rated by supervisors as having demonstrated improvement on all four scales.
- 1 learner was rated as having demonstrated decreased ability on one scale.
- 7 learners were rated as having demonstrated no change on all four scales.

It is important to note that no base-line data from supervisors of these 30 learners was collected prior to the demonstration project; rather, supervisors were asked at the conclusion of the project to reflect on how each individual participant would have been rated prior to the project as well as at the current time, then record both ratings at the same time on a single copy of the scale instrument.

Building a positive environment for literacy training by identifying and assisting in meeting the needs of employees for support services: Interviews with learners, union representatives, and management representatives reflected acceptance and pride in the Lifelong Learning Center and the instructors who taught there. The Center was seen as a comfortable place to be, the instructors were reported to be concerned and helpful, and a friendly atmosphere with clear rapport between learners and instructors was apparent during all visits of external evaluators.

Examination of student folders revealed an organized structure for identifying student goals and needs. When learners attended, there was evidence of instruction designed to address those goals. Interviews with instructors and notes from team planning meetings revealed a continuous and concerned effort to make sure that learner needs were addressed, even when they appeared to be in conflict with the stated goals of the funded program proposal.

The series of workshops offered during July and August is evidence of the instructional staff responding to the stated needs of learners in the Center for help with study training (i.e. to pursue community college degrees and training programs in both the automotive industry and for transition to other occupations).

In August of 1991, the external evaluators worked with the planning team to develop rating scales for instructors to use in assessing the degree to which learners achieved their stated short term and long term goals. No evidence from these rating scales was provided to the external evaluators.

OSU created a post-program participation evaluation sheet for learners who participated in the six-week sessions. It contained 14 yes-no-no comment check-off response items plus a list of skills for self-assessing growth. Of the 29 learners who completed the evaluation form, almost 100% provided favorable feedback concerning the instructors, the learning center environment, and the materials they were given to work with. Half the learners reported being "able to use the skills I learn in the Learning Center on my current job," although the overwhelming majority of written comments by each of the 29 respondees mentioned working toward passing the GED; none mentioned any job use of skills learned. When asked to check off "the skills that you have learned or improved upon," 95% of the respondees checked off every category listed on the form. The categories were:

- writing
- spelling
- expressing an opinion
- problem solving
- reading to remember
- reading for details
- reading for analyzing information
- analyzing information on charts
- working with basic addition, subtraction, multiplication or division
- working with fractions
- working with decimals

- working with percent
- understanding how I learn best
- study skills.

In summary, there is evidence of the program planners and instructors making repeated attempts to address learner needs. Interviews and observations reflected a positive atmosphere in the Lifelong Learning Center for those learners who chose to enter. No specific evidence was provided to the external evaluators documenting the degree to which program participants met their short-term and long-term goals as a result of participation in the workplace literacy program. Pre- and post-assessment data do not provide evidence of much improvement in general basic skills, and no evidence of transfer of skills to specific job behaviors. No measures of self-esteem (part of the newly evolved goals) were included in the assessment.

Conclusions and Recommendations

Based on the results of this evaluation, the following conclusions and recommendations concerning stated grant goals are offered.

There is strong evidence that:

- Initial processes for identifying critical job tasks and gathering and analyzing workplace materials and situations as a basis for curriculum content occurred. This is documented by DACUM and literacy task analyses results, along with instructional lessons produced by curriculum developers.
- OSU adapted instruction to learner needs when it became clear that neither the learners nor the employer/union were any longer interested in the original program goals. Workshops and documentation of meetings are evidence of this.
- Instructors did well in organizing, designing and/or assigning instruction that was generally appropriate for goals expressed by learners as documented in learner folders.

There is only a moderate amount of evidence to indicate that:

- Appropriate levels, methods and frequency of communication between partnering organizations on the project planning team, i.e., OSU, IFG-GM and UAW occurred, although regularly scheduled meetings and transmission of information via facsimile (FAX) were used.
- Instruction was mastered by participants and/or transferred to performance on the job or in everyday life. The evidence that is available indicates larger gains achieved on standardized tests following participation in finite, structured, group sessions on company time than from voluntary open-ended/ open-exit programs.

There is little or no evidence that shows:

- Commitment to proposed and funded goals by employer/union partner.
- Cost benefit of program to employer/employee; reasons to continue, expand, or replicate program.
- More than a few learners were retained in the program long enough to make any significant, transferrable learning gains likely.

Recommendations:

The Lifelong Learning Center serves a useful function for IFG in helping employees make initial steps in continuing their own educations. It serves as a therapeutic beginning for adults who are unsure about embarking on their own further educational pursuits. The voluntary attendance, i.e. open-entry/open-exit format, at the Lifelong Learning Center, however, makes effective, long-term instruction focused on workplace literacy and productivity goals very unlikely. In addition, the current lack of union and management support for such goals in the Center almost guarantees the failure of any program attempting to achieve the workplace literacy goals espoused in the originally funded program.

IFG-GM/UAW should be encouraged to continue with the Lifelong Learning Center if union and management representatives feel it meets their needs. No further federal funding under workplace literacy program guidelines is justified, however. Such funding should be directed toward programs structured to make likely the accomplishment of goals such as those stated in the funded program proposal. This means a significant investment in structured classes addressing workplace literacy demands and filled with assigned learners-- either entire work-teams or workers requesting or identified as needing the work-related courses offered. An incentive system for encouraging the active participation of learners would also be highly desirable. A strand of voluntarily attended instruction, like the IFG-GM/UAW program could be a small part of such a program.

The fact that the entire IFG-GM/UAW program was voluntary created several insurmountable difficulties in drawing positive conclusions about its effectiveness. Companies normally evaluate any training program on the four levels that follow to determine the program's rate of success. Because the program described and evaluated herein, functioned under funding for a *workplace* literacy program, as opposed to an academic adult education program, it is appropriate to examine it based on these four criteria:

Level I- does the proposed program match with an identified organizational need? In this case, the industry/union partners provided input to the original proposal submitted for funding stating that work-related basic skills instruction was necessary to enable their workers to master current and future job demands in areas of synchronous manufacturing. According to its original published goals, the program was to be designed and delivered to meet these organizational needs. When the target population could not be enticed to volunteer, federal funds and countless planning hours were expended trying to deliver two programs: the workplace literacy program promised and meeting funding guidelines and another more general, entirely learner-centered program for the vast majority of learners who had little or no real interest in improved literacy performance at IFG-GM.

Level II- do the participants selected for training master the content of the training program? In this case, the voluntary nature of the program also precluded the collection of sufficient evidence to demonstrate that anyone learned anything. When learners leave at a time of their own choosing, gathering post-test data is nearly impossible. The program gathered sets of pre/post test data on only seven learners. None of these data addressed the original program goals for worker mastery of basic skills applications related to critical job tasks identified by the industry/labor partner; nor did they measure the recently stated new organizational goal for improved participant self-esteem.

Level III- do those participants who master training demonstrate improved job performance in areas identified as critical to show positive transfer of learning? In this case, the project director-developed supervisor scales for post-program use did not identify job performance behaviors specific enough to provide measurable data to demonstrate significant gains; and, no base-line data were collected for comparison. Additionally, voluntary programs rarely retain learners long enough to make a difference. Research indicates that a one-year grade level gain in literacy abilities requires from 50-100 hours of instruction or practice. In the voluntary open-entry/open-exit Lifelong Learning Center component of the demonstration project, which was its primary focus of operation, only two learners attended longer than 100 hours and only seven learners attended for as long as 40 hours. Even without test data, the brevity of contact hours makes it extremely unlikely that any but a few learners mastered new skills or abilities.

Level IV - does impact on performance lead to demonstrable cost benefits, i.e., money saved or generated, by the positive changes in employee behavior? In this case, the company did not cross-reference individual productivity indicators with performance appraisals or the supervisor scales and instructional objectives of the course. No data exists to determine the possible cost-benefits derived from sponsoring this program. The existence of such evidence often leads to the adoption of the program as a negotiable benefit, with paid participation time for learners. The dollars spent per learner contact hour in this voluntary program is arguably one of the highest of any workplace literacy program these evaluators have seen. With the departure from the originally funded program's work-related goals, and the absence of evidence that it was beneficial to the industry/ union partner or participants in the workplace, it is difficult to conclude that this was an effective workplace literacy demonstration project.

APPENDICES

APPENDIX A

LITERACY TASK ANALYSIS

1. Guidelines
2. APO DELTA Profile
3. Literacy Components of IFG/GM Job Materials
4. Sample - Gas Filler Door Job Guide
5. Sample - Labor Cost Worksheet
6. Sample - Packer

GUIDELINES FOR LITERACY AUDIT OBSERVATIONS

1. Select priorities from DACUM profile
    - o Eliminate tasks that have no meaty basic skills content (e.g., sweep the floor)
    - o Identify problem tasks
    - o Give weight for importance and criticality

2. Conduct observations of employees performing priority tasks to analyze the use of basic skills*

    - o Observe a competent performer of the critical tasks in action. During the observation, ask the performer questions that give you information about the mental processes they are going through to perform the task. (Example: "How do you ___?" or "Could you please show me how you ___?" or "Suppose you had to teach me how to do this. What are the most important things I'd have to learn? What would you teach me first? Why?" and so on.) You may need to observe 2 or 3 competent performers of the same task to abstract the entire mental processing that is required to perform the task because competent performers tend to develop personal "short-cuts."

      Ask questions re:
        - reading
        - writing
        - speaking
        - listening
        - computing
        - measuring
        - decisions
        - problem-solving

    - o Obtain copies of printed materials used to perform the task you observed/interviewed. If filled-in forms are used, get a copy of one that is filled in and an extra copy that is blank. This will allow you to create instructional exercises that simulate the actual use of the form.

    - o Review the collected printed task materials and your notes to familiarize yourself with the materials and goals. In other words, do your "homework" to orient yourself to the activities, environment, tools, and equipment for the task.

    - o Screen the printed task materials for problematic tasks for learners that are also to perform the task.

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*Adapted from the work of Jorie Philippi, Performance Plus, Inc. 1990.

ALL PURPOSE OPERATOR

7/90

Duties	Tasks								
10 Operate Manufacturing Machines	**1.1 Get Materials** Read Labels Discuss Operation	**1.2 Turn on Power Sources**	**1.3 Start Machines** Read Job Guides Read Panel Displays	**1.4 Test Cycle Machine** Decide if Machines are Performing Properly	**1.5Clean Tooling**	**1.6 Prepare Work Area for Production** Apply Ergonomics Principles	**1.7 Load Materials In/Out Tooling** Read Operating Instructions	**1.8 Cycle Machine/Work Station**	**1.9 Conserve Energy** Read Shut Down Procedure
20 Hand Assemble Component Parts	**2.1 Get Components** Read Labels Discuss Operations	**2.2 Join/Secure Components**	**2.3 Conserve Energy** Read Shut Down Procedure						
30 Inspect Products for Defects	**3.1 Compare Part with Module Board** Read Module Board	**3.2 Gage Parts/Products** Read Instruction Sheets Read Measurement on Gages	**3.3 Test Parts/Products** Decide if Parts Meet Specs	**3.4 Implement SPC Procedures** Use Coordinate System Apply Ranges of Tolerance Compute Arithmetic Means Read Measurements	Read Charts Document Changes Analyze SPC Information Present SPC Information Maintain Charts				
40 Maintain Clean and Safe Work Area	**4.1 Dump Scrap Pans** Read Containers Determine Type of Material	**4.2 Put Everything In its Place** Read Visual Guides Make Best Use of Space	**4.3 Sweep/Mop Work Area**	**4.4 Dump Trash in Proper Container**	**4.5 Keep Oil Off Floor**	**4.6 Report Problem to Maintenance/Safety** Report Verbally and in Writing Recognize Materials Hazards Decide on Appropriate Action	**4.7 Clean Out Worn/ Baskets**		
50 Follow All Safety Procedures	**5.1 Wear Proper Clothing** Read Dress Code	**5.2 Wear Required Eye/Ear Protection** Read Related Signs	**5.3 Use Proper Tools for the Job** Identify Tools by Name Read Job Guides	**5.4 Call/Attend Regular Safety Meetings** Communicate as Facilitator	**5.5 Complete Check-Out List on Power Trucks** Identify Truck Parts Read Lists Check Lists	**5.6 Follow Traffic Safety Rules** Read Traffic Signs	**5.7 Keep Clear of Pinch Points** Explain Pinch Points	**5.8 Follow All Lock-Out Procedures** Locate Power Sources Read Manuals	**5.9 Order Proper Protective Wear** Read/Discuss Emergency Information Read/Write Requisition
	5.10 Follow Emergency Procedures	**5.11 Emphasize Safety Importance**							
60 Schedule Production Operations	**6.1 Receive M.R.S.** Read M R S Compute Required Amounts	**6.2 Determine Job Priority** Read Delivery Schedule Decide Timing	**6.3 Inventory Components** Count Containers Read Labels Multiply	**6.4 Order Components If Needed** Telephone Order Read and Write Order Forms	**6.5 Adjust Schedule If Needed** Read Hot Sheets, PR Orders	**6.6 Adjust Hours as Needed** Computer Hours Needed			
70 Prepare Production Charts	**7.1 Identify Type of Chart Needed** Decision Making	**7.2 Collect Data** Count and Measure Compute Arithmetic Means Read Meter	**7.3 Get Charting Supplies**	**7.4 Plot Data on Chart** Use Coordinate System Analyze Data Document Changes	**7.5 Post Chart** Present Information Maintain Charts				

Analysis conducted for
Inland Fisher Guide Division
of General Motors Corporation
by the College of Education
The Ohio State University

ALL PURPOSE OPERATOR (CONT.)

7/90

	Duties	Tasks								
8.0	Transport Materials and Supplies	8.1 Get Proper Training for Drivers License Read Manual Complete Written Tests	8.2 Locate Needed Materials Apply Knowledge of Storage System	8.3 Use Suitable Equipment Compare Equipment Capacity with Weight	8.4 Move Materials and Supplies	8.5 Unload Materials and Supplies				
9.0	Order Raw Materials and Purchased Parts from Suppliers (Ext.)	9.1 Follow Pull System Read Cards	9.2 Identify Suppliers Read/Write Requisitions Read Labels	9.3 Identify Lead Times of Supplier and Production Compute Production Lead Time Call Supplier for Lead Time	9.4 Complete Proper Requisitions Identify Standard Pack Compute Quantity	9.5 Conserve Materials and Supplies				
10.0	Perform Changeovers	10.1 Remove Unneeded Materials/Equipment Read Component Job Guide Read Routing Sheet	10.2 Obtain Needed Tools Read Job Guide	10.3 Lock Out Equipment Locate Power Sources Read Manuals	10.4 Remove Die Guards	10.5 Notify Skilleds as Necessary Call Skilleds	10.6 Change Tooling	10.7 Unlock Equipment	10.8 Replace Die Guards	10.9 Adjust Rams/Machinery Read Meters (Adjustment)
		10.10 Run Test Part Decide Quality of Part Decide Further Adjustment								
11.0	Troubleshoot Production Operation Problems	Make Decisions Write Problem on "ECR" Card (Recurring) Solve Problems	11.1 Identify Problem Discuss Problem with Team	11.2 Analyze Problem Discuss Problem with Quality/Engineering	11.3 Identify Root Cause Communicate with Supplier	11.4 Identify Possible Solutions	11.5 Select Most Likely Solutions	11.6 Implement Most Likely Solutions	11.7 Notify Skilleds as Necessary Call Skilleds	11.8 Clear/Reset Machine Read Panels
		11.9 Collect Data	11.10 Record/Chart Data (Chart skills as in 7.0)							
12.0	Assist in Performing Preventive Maintenance	Lubricate Machinery on a Scheduled Basis Read Labels Record Lubrication Date Read Lubrication Guide	12.1 Track Output for Needed Maintenance Maintain Tally of Production	12.2 Use All Senses to Monitor Machinery Daily	12.3 Clean Tooling/Equipment	12.4 Monitor Regular Oil Filter Change Determine Frequency Needed Record Filter Change Date	12.5 Identify Specific Maintenance to Reduce Major Down Time Create Pareto Chart			
13.0	Participate in Team Work	13.1 Schedule Regular Meetings	13.2 Participate in Scheduling Production Operations	13.3 Identify Training Needs Develop Efficient Motion	13.4 Provide OJT Training Use Coaching Skills	13.5 Contribute Ideas to Benefit the Team Articulate Individual Opinions Use Consensus Building Skills	13.6 Work within Team Concept Use Conflict Resolution Techniques Use Team Skills	13.7 Perform All Operations	13.8 Assist with Layout Read Layout Chart and Blueprints Communicate with Engineers	13.9 Participate in Group Leaders' Meetings Read Meetings Record Minutes
14.0	Pack Products	14.1 Follow Pack Spec Read Module Board or Routing Sheet	14.2 Select Proper Container for Product	14.3 Obtain Proper Packing Material	14.4 Obtain Proper Label	14.5 Inspect Parts	14.6 Pack Proper Quantity Count Parts and Layers and Multiply	14.7 Move Products to Shipping	14.8 Respond to Emergency Shipping Needs Listen to Order Changes Read Hot Sheet/M.R.S.	

IFG/GM JOB MATERIALS

Item	Reading Objectives	(Style) Reading	Math	Visuals
Operator's Guide Fineblaning	Operation Troubleshooting Lubrication	-directions -simple & complex sentences	Subtraction measures decimals sub of decimals fractions (tables)	diagrams
Operator's Guide Rolling Mill	Operation Troubleshooting Lubrication	-directions -simple & complex sentences	fractions (tables)	diagrams
Operator's Guide Rolling Mill	Operation Troubleshooting Lubrication	-directions -simple & complex sentences	measurement	diagrams (tables)
Operator's Guide Buisness Unit Two #42, 43, 44, 45, 46, 48, 50, & 51	Operation Changeover Troubleshooting	-directions -simple sentences complex sentences	fractions (measure)	diagrams (tables)
Operator's Manual Synchronous Area Rotary Punch Press	Start Up Operation Shut Down Rotary Die Changeover Troubleshooting	-directions -simple & complex sentences	fractions (tables) fractions (measure)	

Item	Reading Objectives	(Style) Reading	Math	Visuals
Fineblanking Troubleshooting Guide	disassembly, assembly maintenance and troubleshooting	-directions -simple & complex sentences	fractions (tables) decimals (tables)	
Set-Up and Attend Guide Business Unit Two #45, 46, 48, & 50	operation changeover troubleshooting	-directions -simple & complex sentences	fractions (tables)	diagrams (tables)
Tool & Diemaker's Guide E-K Mold	-Mold Terms -Mold Parts -Disassembly -Assembly -E-K Test Machine Operation -Inspection -Troubleshooting	-directions -simple & complex sentences		diagrams (tables)
Jobsetter's Guide E-K Molding	Operation Changeover Troubleshooting	-directions -simple & complex sentences		diagrams (tables)
All Purpose Operator Guide Gas Filler Door	Operation Changeover Troubleshooting	-directions -simple & complex sentences	fractions (labeling) fractions (measure)	

Items	Reading Objectives	(Style) Reading	Math	Visuals
Charting Easybook A Training Program for Inland Fisher Guide Columbus Employees	accompanies lecture & discussion of chrting workshops	-graph interpretation -self testing (in simple sentences	+ - x + -equations percentage	graphs diagrams (tables)
Synchronous Work Groups	directions for implementing the synchronous method	graph		diagrams (tables)
Waste Water Attendants Manual	basic skills and knowledge of water system operation		percentage (subtraction) metric system measurement (ft. gals.)	
Hydraulics 11 & 111	activity manual	complex reading and diagrams	volume percentage	diagrams

Item	Reading Objectives	Reading Style	Math	Visual
Safety Instructions for Walkie Type Fork Truck and Sit-Down Fork Truck	-safety and maintenance -purpose and use of controls -understanding purpose and design of lift trucks -weight of trucks	-procedures -simple & complex sentences	(? not visible)	diagrams (tables)
Safety Instructions for Die Changing	training for safety in a lockout situation	procedures -simple & complex sentences	fractions (tables) measurement (approximation)	diagrams (tables)
Coaching for Improved Job Performance	-manual for supervisory staff development	procedures of process		
Fineblanking Training Course	Lecture and discussion Hand-on lab procedures	procedures and diagrams vocabulary		diagrams (tables)
General Motors Corp. Fisher Guide Division Troubleshooting Guide for EK Molders	Identification of common machine faults Troubleshooting - no?	-simple & complex sentences		diagrams

Employee Information Literature

Additional Inventory Help
Administrative Building Bake Sale
In Memorium - Employee Death
Tornado Preparedness Saves Lives
Memo: Company Vehicles (avail. to employees)
Notice of Open Position
Notice to All Employees - Language Shop Rule #28
Memo: Employee Death Notification
An Open Letter to the Members of Business Unit One
Corrections to your 1990 Roster
COE-SRA Newsletter
Local 969 U.A.W. News & Views
Inland Fisher Guide Newsline
Notice Chaplaincy Committee Meeting
Quality Improvement Process (cartoon)
Factory Regulations - Rules for Personal Conduct
Hold (tag) (Release of This Tag Requires Approval of Quality Control Dept.)
7481 Call #4 (tag) 8088 Call #2 (tag)
10133407 (tag)
Power Vehicle Inspection Tag
Notice To Truck Repair (tag)
1660 3852 P/R Switch R-25 (tag)
ATTENTION - No 95683 (tag) fill-in the blank)
007057 (tag) fill-in the blank)
1851 (tag) (fill in the blank)
Fisher Guide Division - Material Requisition (fill-in the blank)
Tool Room Check List
Tool-Die Future Repair Order
Temporary Plant Standard (fill-in)
Five-Minute Safety Talk (fill-in)
Pertinent Grievance Data and Discussion (fill-in)
Quality Improvement Process - Error Cause Removal (narrative fill-in)
Routing Sheet (fill-in)
Paint Mixing & Storage Room Condition Report (fill-in)
Operation Instruction Sheet
AVR Scrap Price/Piece (Graph)
Characteristics of a Continuous Improvement Plan
What Is Continuous Improvement
Tool Turn In Day
Business Unit 5's YTD Scrap Report (Graph)
Scrap PER Productive Labor Hour (graph)
Notice - (Job posting)
Checking Fixture Instruction Sheet
Employee Weekly Earnings Statement
Shift Preference Request
Designation of Beneficiary and Contingent for Optional Group Life Insurance
Employee's Entrance or Exit Pass (fill-in)
Application for Paid Absence Allowance (fill-in)
Employee Suggestion (fill-in)
Notice of Disciplinary Action (fill-in)
Application for Option Form (fill-in)
Application for Vacation Time Off During 1990 (fill-in)

Application for Advanced Vacation Pay
Application for Leave of Absence (fill-in)
Buckeye Bulletin
Personal Savings Plan (booklet)
Manufacturing Requirement Status
Ohio Bureau of Worker's Compensation
1990 COESRA Associate Member Discounts
Dental Plan Benefit Comparison
Tool Room Skills (brochure) General Maintenance Skills (brochure)
Manufacturing Skills (brochure)
GM Engineering and Management Institute (brochure)
UAW & GM Tuition Assistance Plan
General Motors Higher Education Matching Contributions Program
Employee Development Input Record (fill-in)

Meeting the challenges of the future with people—our greatest resource

ALL PURPOSE OPERATOR GUIDE

GAS FILLER DOOR

FISHER GUIDE - COLUMBUS PLANT

UAW LOCAL 969

ALL PURPOSE OPERATOR GUIDE

GAS FILLER DOOR

- OPERATION
- CHANGEOVER
- TROUBLESHOOTING

A TRAINING GUIDE PREPARED FOR
UAW LOCAL 969, FISHER-GUIDE COLUMBUS

FEBRUARY, 1989

INTR CTION

This Guide presents the basic skills and knowledge Operators require to perform tasks on the Gas Filler Door operation. The following information is provided in this Guide:

- Operation
  - . Set Ram

  NOTE Refer to Job Guide located on press for the following operations

  - . Start-up
  - . Shut-down
  - . Jog Ram
- Changeover
  - . Remove Die
  - . Install Die
  - . Remove Die With Pressure Pins
  - . Install Die With Pressure Pins
- Troubleshooting
  - . Machine
  - . Piece Part

HOW TO USE THE GUIDE

You can perform your job faster and easier using the following training guidelines

- Carefully study and review the Guide before starting the job
- Observe an experienced Operator demonstrate the task
- Follow each step presented in the Guide during the demonstration
- Ask questions if you are uncertain about any step
- Report any problems with the Die, Machine, or equipment to your Coordinator

BEST COPY AVAILABLE

ALL PURPOSE OPERATOR

Task: Complete the Daily Unit Labor Cost Worksheet

Objective: To find out what it costs in hours of labor to make one part that is shipped. One part will be called a unit. (An example would be one miniwedge door lock or one drip molding.)

Reason: Labor is the company's most important resource. To stay in competition, labor hours must be used carefully. When one unit is scrapped, some labor hours are wasted. How much is wasted? The unit labor cost is a measure of the waste. The goal is to reduce the waste--to make all the labor hours count.

Look at the Daily Unit Labor Cost Worksheet below.

DAILY UNIT LABOR COST WORKSHEET

Number of operators ____________

Times x

Number of hours on job per operator ____________

Equals Total Labor Hours ____________

Minus number of hours any operators were gone ____________

Equals Total Actual Labor Hours ____________

Times x

Labor Cost per hour per operator ($18.00) ____________

Equals Total Labor Cost ____________

Divided by ÷

Units Shipped ____________

Equals Unit Labor Cost ____________

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Literacy Task Analysis

Position: APO's and Supervisors
Job Task: Maintain the Daily Unit Labor Cost Worksheet

Job Steps	Literacy Tasks
1. Determine number of operators and hours involved on a job. 1.1 Count number of operators normally working on a line. 1.2 Multiply that number by the number of hours on the job per operator. 1.3 Calculate number of hours per operators not working that day. 1.4 Subtract hours in 1.3 above from hours in 1.2 above.	1. Add using whole numbers. 2. Multiply using whole numbers and/or fractions. 3. Subtract using whole numbers and/or fractions.
2. Determine total labor cost 2.1 Find labor cost per hour for operators working on this job (see appropriate list or chart). 2.2 Multiply cost in 2.1 above by total labor hours found in 1.4 above. 2.3 Count number of units shipped. 2.4 Divide Total Labor Cost found in 2.2 above by the number of units shipped from 2.3 above (result is Total Unit Labor Cost).	1. Using a list or chart, identify numerical data needed to perform calculations. 2. Multiply using whole numbers, fractions, and decimals. 3. Add using whole numbers. 4. Divide using whole numbers and decimals.

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LITERACY TASK ANALYSIS

Job Task: Packer
Job Duty: Pack Products

	Tasks		Literacy Skill Applications
1.	Sets up packing routine	1.1	Locates information on routing sheet, module board
		1.2	Follows sequential directions
		1.3	Recognizes abbreviations
		1.4	Recognizes task-related words with technical meanings
		1.5	Compares part numbers, routing sheet, module board, label and spec sheet
2.	Inspects parts	2.1	Compares and contrasts--determines presence of a defect
3.	Packs parts	3.1	Locates information on routing sheet, module board
		3.2	Follows sequential directions
		3.3	Recognizes abbreviations
		3.4	Recognizes task-related words with technical meanings
4.	Completes routing sheet	4.1	Locates information on routing sheet--correct boxes to fill in
		4.2	Records number of parts packed and time taken

APPENDIX B

PUBLICITY/DISSEMINATION

1. Position Description
2. Confidentiality Policy
3. Map of LLC
4. Grand Opening Announcement
5. Press Releases
6. Lifelong Learning: A Key to World Class Manufacturing
7. Buckeye Bulletin
8. Dispatch Article
9. Focus on Education
10. Centergram

PART-TIME TEACHERS

Position Description Draft--Revised 4/27/90

Two part-time (50%) teachers needed to provide instructional portion of workplace education program that is a partnership between Ohio State University's College of Education, and Inland Fisher Guide/UAW Local 969. Instruction will be delivered on site at IFG's location. Specific duties and responsibilities will include the following:

- Provide workplace-based basic skills instruction
- Develop individual educational plans (IEPs) in conjunction with program participants
- Coordinate instructional activities with teacher/coordinator
- Coordinate tasks and communicate with on-site company and union personnel
- Learn job tasks of participants
- Provide information for participant records

Qualifications: Experience in adult basic education within a workplace setting; excellent human relations and communication skills; knowledge of adult education; willingness to work a nontraditional schedule; experience with computer-assisted instruction desirable; degree in education the bachelors' level.

ATTACHMENT B

FULL-TIME TEACHER/COORDINATOR
Position Description Draft--Revised 4/27/90

Full-time teacher/coordinator to manage instructional portion of workplace education program that is a partnership between Ohio State University's College of Education, and Inland Fisher Guide/UAW Local 969. Specific duties and responsibilities will include the following:

- Supervise and coordinate activities of two part-time teachers
- Coordinate tasks and communicate with on-site company and union personnel
- Coordinate tasks and communicate with OSU project staff
- Participate in selection/development of curriculum materials, as needed
- Maintain records of participant attendance and progress
- Learn job tasks of participants
- Provide workplace-based basic skills instruction
- Assist with recruitment, as appropriate

Qualifications: Experience in adult basic education within a workplace setting; excellent human relations and communication skills; supervisory experience; knowledge of adult education; willingness to work a nontraditional schedule; experience with computer-assisted instruction desired; masters degree; degree in education, at either the masters' or bachelors' level.

February 6, 1991

Inland Fisher Guide
United Auto Workers Local 969
The Ohio State University

LIFELONG LEARNING CENTER

CONFIDENTIALITY POLICY

In order to encourage every employee to utilize the Lifelong Learning Center, it is the policy of Inland Fisher Guide (IFG), the United Auto Workers Local 969 (UAW 969) and The Ohio State University (OSU) to treat all dealings with Inland Fisher Guide employees with the **utmost confidentiality**.

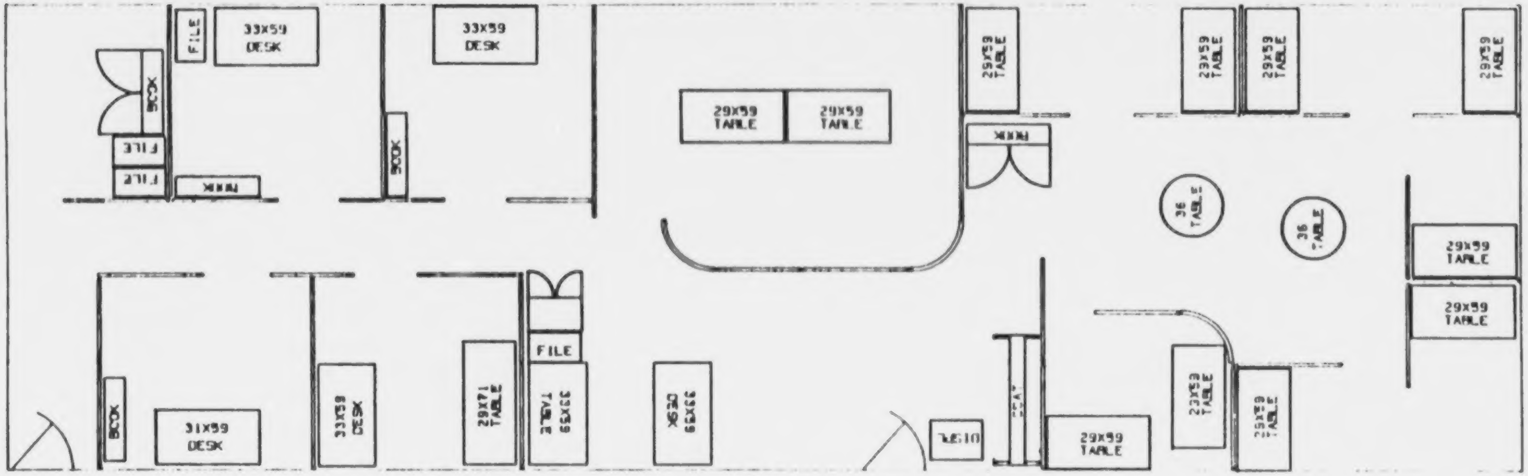
All records pertaining to an individual employee and/or his/her learning plan shall be kept in secure learning files within in the Lifelong Learning Center (Center). Access to these files **shall be limited to OSU personnel only**, expressly for purposes relating to the employee's instruction at the Center or for purposes of reporting of data to the funding agency. Reporting will omit any direct or indirect information which could lead to the identification of individual employees using the Center.

IFG and UAW 969 personnel are **expressly prohibited** from access to the secure learning files of IFG employees. Lifelong Learning Center Staff will not release any information to IFG or the UAW regarding who is receiving instruction at the Center or the content of individual instructional plans.

An individual employee may examine his/her secure learning file upon request to appropriate OSU personnel.

LIFE LONG LEARNING CENTER

BEFORE REARRANGE



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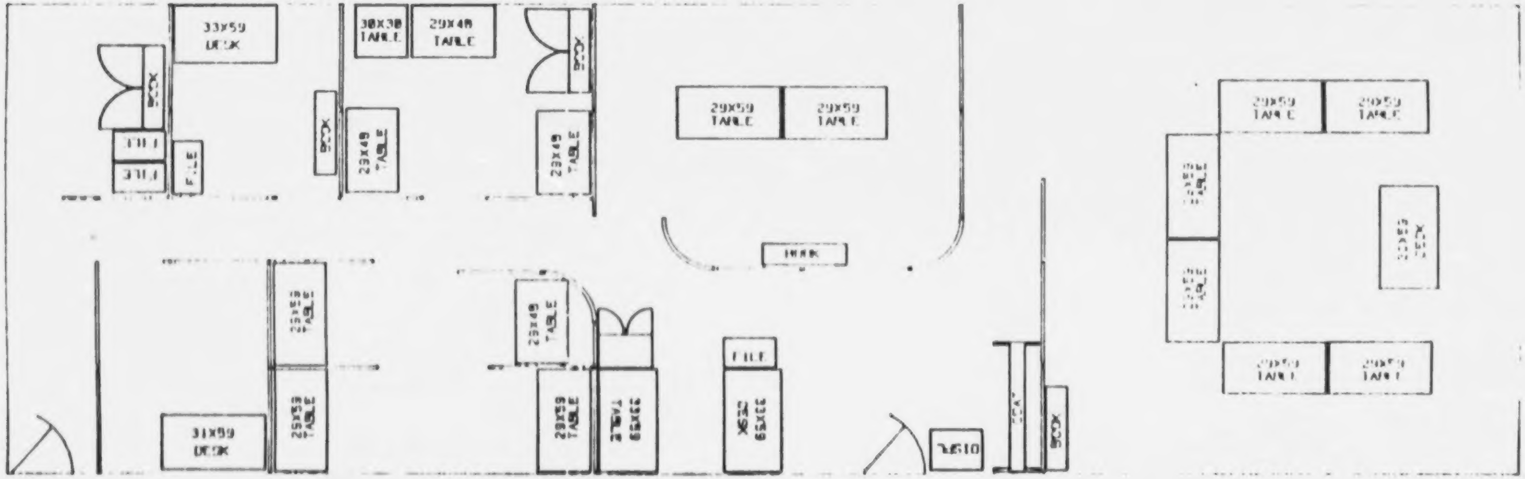

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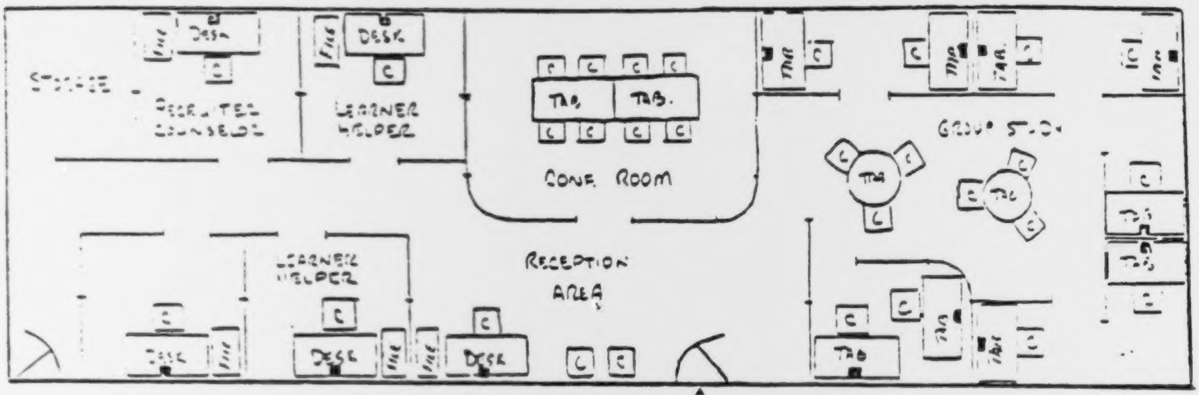
LIFELONG LEARNING CENTER

GRAND OPENING
September 4, 1990
1:00 P.M.


STORAGE
RECRUITER COUNSELOR
LEARNER HELPER
CONF. ROOM
LEARNER HELPER
RECEPTION AREA
GROUP STUDY
DESK
FILE
TAB.
C

LIFELONG LEARNING CENTER

⇦ STAIRS TO LOBBY

AUDITORIUM ⇨

2nd Floor Administration Building

TO MAKE AN APPOINTMENT IN THE LIFELONG LEARNING CENTER:

DEBBIE FERRELLI	5081
RALPH FRANCISCO	5274
MARK PIERCE	5132

GRAND OPENING

THE LIFELONG LEARNING CENTER
Tuesday, September 4, 1990

INTRODUCTIONS	Auditorium
WELCOMING COMMENTS	Auditorium - Don Anderson Dean, College of Education The Ohio State University - Harry Lambert Plant Manager Inland Fisher Guide - Ralph Neff President UAW Local # 969
THE OPENING CEREMONY	Lifelong Learning Center
QUESTIONS AND ANSWERS	Lifelong Learning Center

Contact:
Mark Pierce or Ralph Francisco
Inland Fisher Guide, Division of GMC
200 Georgesville Road
Columbus, Ohio 43228
(614) 275-5132 or 275-5274

FOR IMMEDIATE RELEASE

"LIFELONG LEARNING" PARTNERSHIP TO ENHANCE FISHER GUIDE COMPETITIVENESS

An innovative partnership formed last year between General Motors, the United Auto Workers, and The Ohio State University will bear fruit on September 4 when company, union and university officials open the Lifelong Learning Center at the Inland Fisher Guide Plant on Columbus' West Side. The opening ceremonies and ribbon cutting on the almost $600,000 project will take place **at 1:00 P.M. on Tuesday September 4** at the plant located at **200 Georgesville Road** in Columbus. High ranking officials from G.M., the U.A.W., and O.S.U. will participate along with rank-and-file employees.

The GM/UAW/OSU collaboration was one of only 39 "exemplary partnerships" awarded funds this year by the U.S. Department of Education to explore effective ways of bringing workers' skills up to the levels needed for American business to compete effectively in the modern international marketplace.

The typical manufacturing workplace has changed dramatically, now requiring shop floor workers to have much higher levels of reading, mathematics, communication, and teamwork skills than it did just a few years ago. The Lifelong Learning Center is based on the realization that General Motors' workers must adapt and "upskill" continuously in the coming decades, not simply shut the schoolhouse door after ending formal education as a young adult.

(MORE)

The Inland Fisher Guide plant is on the cutting edge of new technology and manufacturing processes designed to improve quality, customer service, and cost effectiveness for the products it makes for G.M. and other vehicles. The Lifelong Learning Center Project is special among workplace education programs nation-wide because it will not simply teach employees from standard texts. O.S.U. experts have looked carefully at the specific skills that workers need on the job, are creating and adapting teaching materials based on those needs, and--starting September 4--will provide individually-tailored training programs for workers who volunteer to upgrade their skills.

The Lifelong Learning Center is designed to be a state-of-the-art workplace education facility for a state-of-the-art workplace. G.M., U.A.W., and O.S.U. personnel involved in the project, as well as local and national government officials and community leaders, believe the Lifelong Learning Center partnership represents an ideal kind of cooperation. This type of cooperation among business, organized labor, and education is seen as crucial for American companies, workers, and products to become "world class" in the 1990s and beyond.

###

The Basic Workplace Skills Program is covered by a GM/ UAW/OSU federal grant. Employees who qualify will receive wages for 1/2 the time they spend in class with a max of 2 hours per week and a minimum of 1 hour per week.

On-line interactive computer training for technical skills (ALIS) is offering such courses as:

- Algebra
- Pre-Calculus
- Calculus I
- Calculus II
- Fluid Power Symbols
- Fundamentals of Finance & Accounting
- Time Management
- Pneumatic Power Fundamentals
- Robotics
- Micro-processors
- Blueprint Reading
- Problem Solving
- Mechanisms
- Communication Skills
- Computer-based Training
- Industrial Electronics
- Statistical Process Control
- Capital Budgeting
- Hydraulic Power Fundamentals
- Programmable Controller Fundamentals

Plant Contacts

- Ralph Francisco
- Mark Pierce
- Debbie Ferrelli

Teachers

- Janet Collins
- Patricia Connor
- Margie Girkins

Lifelong Learning Center
275-5081

LIFELONG LEARNING
A KEY TO
WORLD CLASS MANUFACTURING

IFG UAW GM

A JOINT PROJECT OF
UAW LOCAL 969
INLAND FISHER GUIDE DIVISION
COLUMBUS, OHIO

Phone Numbers

Ralph Francisco	275-5274
Mark Pierce	275-5132
Debbie Ferrelli	275-5081

United Auto Workers Local # 969 and the Inland Fisher Guide Division - Columbus Plant are proud to introduce the Lifelong Learning Center.

The Lifelong Learning Center provides employees with educational opportunities that are:

- Confidential
- Convenient
- Responsive
- Individualized

The United Automobile Workers (UAW)Local #969 Inland Fisher Guide (IFG) Division - Columbus and the Ohio State University (OSU) have formed a partnership to provide a basic skills develoment program for the employees of the plant.

Objectives

- **Improve basic skills of workers.**
- **Enable workers to adapt to a changing workplace.**
- **Provide a supportive learning environment.**

All records about an individual learner are considered confidential and are available only to the teaching staff of the Lifelong Learning Center.Plant Employees DO NOT **have access to employee learning records.**

The project is funded by a grant from the United States Department of Education in the amount of $389,000.00. Additional funding includes the in-kind contributions from the workers at the plant through the Local Joint Training Fund and Ohio State University which brings the total funding to nearly $600,000.00.

Many employees have mastered the basic skills but have not graduated from high school. The answer for these employees lies in the General Equivalency Degree (GED) program being offered on-site through the Lifelong Learning Center.

The Joint Training Department has arranged for the Southwest City School District to provide GED instruction on-site. Employees who attend this instruction and take the practice GED Exam through the Southwest City School district will be permitted to take the exam at no cost.

Increasingly employees are expected to be able to use personal computers as a tool to prepare production reports or charts and are intimidated by this tool. The Lifelong Learning Center has Personal Computers available for employees to practice their computing skills.

The Lifelong Learing Center has a resource person available on all three shifts to answer any questions employees may have.

The Lifelong Learning Center will provide college level courses on-site whenever it is determined there is sufficient demand for the courses. These courses will be provided through Columbus State Community College.

Other self development courses are being made available through the PACE Group. Some of the courses being offered are:

- Effective Presentation Skills
- Effective Listening Skills
- Effective Meeting Skills

IFG INLAND FISHER GUIDE

GM

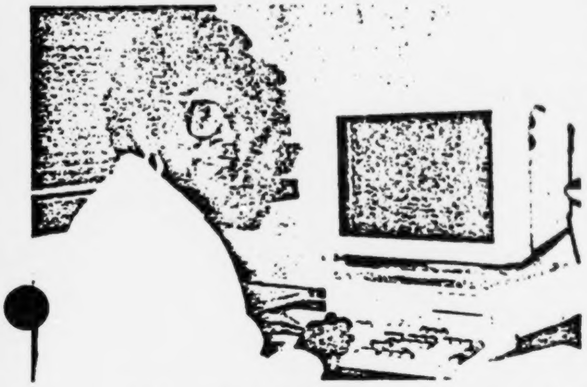
UAW

BUCKEYE BULLETIN

January 9, 1991

For the employes of IFG Columbus

Employe raves about the Lifelong Learning Center



The Lifelong Learning Center has given me a more positive attitude and a clearer mind. Why is it that when you have a better understanding of yourself you better understand people? The Center sharpens your thoughts and this helps you to deal with any situation.

I like coming to the Lifelong Learning Center because it's convenient. I don't have to go home first, I can come right after work, right upstairs. I'm renewing my skills in math and writing with our instructor. When you think about going back to school after being out for so long it's scary, but it's nice that we can do this with people who care. I have a goal that I would like to accomplish; the Lifelong Learning Center has started helping me put my goal into action. I'm learning Word Perfect (word processing) on the computer, and also my typing is improving.

Getting back into the habit of studying while working was difficult at first for me, but I'm finding it to be enjoyable. I feel that one of my greatest challenges is yet to come: arguing with and persuading others to try the Lifelong Learning Center.

Jean Wilson
B/U 5

Get smart at the Lifelong Learning Center

Let me ask you a few questions that I can answer with just three letters.

(1) When's the last time you brushed up on your basic skills, reading, writing, arithmetic? (2) How many of us haven't received a high school diploma, but would like to if it was convenient and not expensive? (3) How many of us wish we had knowledge of other skills like robotics, industrial electronics and communications skills (the list goes on and on) in case of layoffs or for just plain satisfaction? (4) Finally, when's the last time you have seen or walked past a computer and said to yourself "I have always wanted to learn how to run one of those"?

> ".....The act of learning is lifelong....."

Well, here's the three letters that will give employes the opportunity to answer those questions: LLC (Lifelong Learning Center). In the LLC you can brush up on those basic skills, receive your GED at no expense to you, and learn how to run and use a basic computer for those skills you want to learn. With your old friend Mr. Layoff Cloud hanging over many of us, now is a good time to get started. You don't have to wait for Mr. Layoff-- you can beat him to the punch. So, come on now, it's right upstairs above the Personnel Office. It's nice, it has great instructors and remember it's FREE!

> ".....now is a good time to get started....."

Remember the act of learning is lifelong!

Barry Thigpen
JOBS BANK

It's never too late to learn

BU 5 employe Jim Price

Jim Price is a Jobsetter in B/U 5. He works for Supervisor Sandy Dortch.

Jim has been actively attending the Lifelong Learning Center while working on getting his GED (high school equivalency diploma). Jim has been an enthusiastic and dedicated student since the opening of the Lifelong Learning Center on September 4, 1990.

Jim felt that the following ideas described his thoughts on how important learning is for all of us and that we should take advantage of the Lifelong Learning Center.

A wise man will hear and will increase learning, and a man of understanding shall attain unto wise counsels. Proverbs 1:5

Jim feels that young or old, it's never too late to learn.

"Those who think they are too old to learn or don't need to learn are those who need to learn the most."

We are all very proud of Jim. You can also follow in Jim's footsteps. Step forward and come on up and see us!

Debbie Ferrelli
Lifelong Learning
Center

Learn to read faster and understand more

A Reading Skills course will be offered at the plant in January which will double to triple your reading speed and significantly improve your comprehension. The course has been taken by thousands of GM employes nationwide and has received excellent endorsements.

Even if you only read the newspaper, you can benefit from this course. It is designed so you can move at your own pace, so don't worry about how fast or slow you read now. Individual progress in class is considered confidential. You do not have to read aloud.

The course is paid for by the Tuition Assistance Plan (TAP), so there is no cost to you.

It is a 12 -hour course, which will be taught in four 3 -hour sessions. The course will also be offered at two different times during the day (noon to 3:00 p.m. and 4:00 to 7:00 p.m.) to accommodate all shifts. The classes are scheduled to be conducted on these dates:

1st Class - noon to 3:00 p.m. on January 22, 24, 29, 31.

2nd Class - 4:00 to 7:00 p.m. on January 22, 24, 29, 31.

You must attend classes outside your regular working hours.

Registration forms and information brochures will be posted on bulletin boards around the plant starting January 3. Just complete the registration form and return it to the Lifelong Learning Center, or to Mark Pierce or Ralph Francisco by January 18. If you have any questions, call Mark Pierce (5132) or Ralph Francisco (5274).

BUCKEYE BULLETIN
...is jointly edited and published every other Wednesday by the Personnel Department. The deadline for articles is Wednesday, 12:00 noon of the week before publication. We welcome your questions, comments and suggestions.

-Editor-
Ruth Rehak
-UAW Editor/Photographer-
Greg Martin
-Production Assistant-
Nikki Marshall

Inland Fisher Guide
Division of General Motors Corporation
200 Georgesville Road
Columbus, Ohio 43228-0512
(614)275-5131 or 5135
8-585-5131 or 5135

College credit courses coming

Arrangements have been made to offer introductory courses through Columbus State Community College. These credit courses will be available to employes through the tuition assistance program if the minimum of 12 persons enroll.

For more information on what courses are available and their dates and times, contact Debbie Ferrelli at the Center at 275-5081.

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Trading on world markets light on American holiday

Associated Press

The Labor Day holiday in the United States and the unsuccessful end of talks between the United Nations secretary general and Iraq's foreign minister kept trading light in major financial markets yesterday.

Stock prices were down sharply on thin trading in Tokyo, London prices rose slightly and in Frankfurt, Germany, stocks were down a bit also on light trading.

"If there is the slightest bit of news, traders are poised to begin selling," said Kazuhiro Nomura, a stock trader with New Japan Securities Co. in Tokyo.

The dollar started its day with a decline in Tokyo, closing at 143.55 yen, down 0.95 yen from Friday's close. Later yesterday in London, the dollar was up against most major currencies.

The 225-issue Nikkei Stock Average, the Tokyo exchange's most closely watched indicator, fell 557.94 points, or 2.15 percent, closing at 25,420.43 points. A light 360 million shares changed hands.

Bullion dealers said the U.S. holiday and a lack of new developments in the Gulf standoff left dealers with little to trade on and markets were quiet.

Gold rose in London to $387.00 a troy ounce, up from $384.45 late Friday.

In Zurich, the metal rose to $387.50, up from $384.00 late Friday.

Earlier, in Hong Kong, gold rose $3.11 to close at $386.61.

Silver bullion rose in London to a late price of $4.83 a troy ounce, up from $4.81 late Friday.

GM, UAW training center to open

A new training center jointly funded by the United Auto Workers, General Motors and through federal grants opens today at GM's Inland Fisher Guide plant on Columbus' West Side.

The Lifelong Learning Center, which will be dedicated at 1 p.m. today, will help GM workers in matters ranging from literacy to making corporate presentations, said Mark Pierce, supervisor of training and development at the plant, 200 Georgesville Rd.

Pierce said the center cost $600,000 to develop and is one result of GM's and the UAW's commitment to jointly provide training for workers.

It started as a literacy center, he said. But during the course of development the organizers expanded its focus to other job-related skills. "We don't want to associate a stigma that this is only for people who are illiterate," he said.

By creating a learning environment, the organizers hope that more workers will take self-improvement classes. "By having them learn anything, they enhance their ability to learn," he said. Ultimately, a better educated work force results in higher productivity for the company, he said.

Pierce and Ralph Franciso, his counterpart at local 969 of the UAW, hope to have 150 workers in classes by Christmas, he said.

TO BUSINESS
CIALS

SAVE ON SUPPLIES

Apple ImageWriter Ribbons $1.67 each 6 or more
Panasonic 1124 1180 1191 Ribbons $2.79 each 6 or more
Okidata 182,192 Ribbons $2.37 each 6 or more

S' BEST 386SX BUY-
ILE SUPPLIES LAST!

PREMIUM DISKETTES
21¢ 100% SATISFACTION GUARANTEED 45¢

SPECIFICATIONS

Microprocessor	[illegible] 80386SX
Clock Speed	[illegible]
RAM	[illegible]
Expansion Slots	[illegible]

CLONES

SPECIAL 80386
25MHz

135

B-8

The Ohio State University College of Education

FOCUS ON EDUCATION

ATTACHMENT D

June 1990

Vol. 8, No. 3

College launches Lifelong Learning Center at Inland Fisher Guide

Technological advancements and heightened competition in the world market are changing the workplace. As a result, a growing number of workers are finding it necessary to upgrade their basic skill and knowledge levels.

In light of this changing climate in the work force, a half-million-dollar-plus Lifelong Learning Program for automotive workers has been initiated through a partnership of The Ohio State University College of Education and its Center on Education and Training for Employment (CETE); the United Auto Workers Local 969; and Inland Fisher Guide Division of General Motors, Columbus, Ohio (IFG/GM).

The need for such a program at IFG/GM has been intensified by the changeover from traditional production modes to synchronous manufacturing. Synchronous manufacturing requires cross-training and cooperative work group responsibilities. In essence, this means a group of workers stands or falls together.

The Lifelong Learning Program will begin with an examination of the work environment. Individualized educational programs will be based on skill levels needed to perform duties and will incorporate each worker's education needs. Recommendations for support services will also be made and provided by the Employment Assistance Program at IFG/GM with the cooperation of the Columbus Private Industry Council.

Educational materials used during the program will also be based on tasks performed as well as the individual learning needs of the participants. That is, a functional learning curriculum using job-related examples and ideas will provide the basis for training. This approach has proven to be particularly effective for adult learners because it builds upon what the individuals already know and shows them what they need to know to be more effective on the job.

The program will be evaluated to determine its effectiveness as well as the workers satisfaction. This evaluation process will be conducted by nationally recognized experts with staff from CETE assisting the process.

As many as 500 employees are expected to be served by the Lifelong Learning Program. Instruction will be offered over a 10- to 12- month period with an open-entry/open-exit policy. Thus, participation in the program is strictly voluntary with each employee determining the level, frequency, and length of time involved. Participants will make these decisions based on their individual education plans, counseling, and their progress in developing the desired skills.

In order to be consistent with UAW/GM's goal to remain a world class manufacturer, the objectives of the Lifelong Learning Program are increased productivity, product quality, and greater job satisfaction as a result of having a better trained work force. It is hoped that this program will prove to be transferable to other General Motors plants as well as plants throughout the automotive industry.

This 18-month project is being sponsored by the Office of Vocational and Adult Education, U.S. Department of Education, with additional support from Inland Fisher Guide Division of General Motors, United Auto Workers Local 969, and The Ohio State University. At the Ohio State University, the project is being conducted by the Adult Literacy Center for Individual and Organizational Development. For additional information about the program, please contact Dr. William Dowling, College of Education, or Sandra G. Pritz, Center on Education and Training for Employment, The Ohio State University.

Theory Into Practice takes honors once again

The College of Education's *Theory Into Practice* (TIP) journal has earned national honors for a special issue on the topic, "Sexuality Education." The award, presented in the one-theme issue category, is given as part of the Educational Press Association of America's (EDPRESS) Distinguished Achievement Awards Program for Excellence in Educational Journalism.

Guest edited by Robert Kaplan of the College of Education, the issue (Summer 1989) addresses this important topic from a variety of perspectives. In addition to the latest research findings and thinking about sexuality education and its effectiveness in promoting sexual health, topics include: the interconnections between sexual abuse prevention and sexuality education, skill building and community approaches to preventing teen pregnancy, AIDS and sexuality education, sex education for mentally handicapped persons, teacher preparation, and moral sexuality education. The collection provides an important and comprehensive resource for sexuality educators and others concerned about this topic.

The awards will be presented at the EDPRESS Awards Banquet held at the National Press Club in Washington, DC, on Thursday, June 7, 1990. This banquet is part of the EDPRESS/90 Conference (June 6-8).

Theory Into Practice is a thematic journal which circulates internationally and is published quarterly by the College of Education. Donald Lux is editor, and Marjory Seltzer is managing editor.

Copies of TIP may be ordered from the College business office, 174 Arps Hall, 1945 N. High Street, Columbus, Ohio 43210. Individual copies are $6.00.

September 1990 Silver Anniversary, 1965 - 1990 ATTACHMENT E
Volume XXV, No. 9

Centergram

Center on Education and Training for Employment • The Ohio State University

Lifelong Learning Initiative Underway for Automotive Industry

The demands of the workplace are changing as a result of technological developments and the increase of worldwide competition. Simultaneously, a growing number of workers are finding it necessary to upgrade their skills and knowledge levels.

Given the current climate, the partnership of The Ohio State University (faculty and staff of the College of Education and the Center on Education and Training for Employment); the United Auto Workers Local 969, and Inland Fisher Guide Divison of General Motors, Columbus, Ohio, has initiated a half-million-dollar-plus lifelong learning program for automotive workers. The need for the program is intensified by the changeover at IFG/GM from traditional production modes to synchronous and cooperative work group responsibility.

The program will begin with an examination of the work environment and the identification of the skills and knowledge that are needed to perform duties and tasks successfully. An individualized education plan will then be developed for each worker that will incorporate the worker's education and training needs and recommendations for support services. The support services will be provided by the Employment Assistance Program at IFG/GM with the cooperation of the Columbus Private Industry Council.

The materials to be used during the program will be based on both the duties and tasks of the jobs as well as the learning needs of the participants. A functional context learning curriculum that uses job-related materials and concepts will provide the basis for the training. This approach is particularly effective for adults because it is geared toward filling in the gap between what the participants already know and what they need to know to be effective on the job.

Finally, the program will be evaluated to ascertain its effectiveness as well as the workers' satisfaction. The evaluation will be conducted by nationally recognized experts Larry Mikulecky, professor and consultant at the Indiana University, and Jorie Philippi, consultant with Performance Plus Literacy Consultants, Springfield, Virginia. Staff from the Center on Education and Training for Employment will assist in the process.

It is anticipated that as many as 500 employees will be served by the lifelong learning program. Employees will be recruited on a voluntary basis. The program will be operated according to need on an open-entry/open-exit basis. Instruction will be offered over a 10- to 12-month period. Participants will choose a level, frequency, and duration of involvement based on their individual education plans, counseling, and progress in developing the desired skills.

Consistent with UAW/GM's goal to remain a world class manufacturer, the program goals include increased productivity and product quality as a result of having a better trained work force. Other expected outcomes are greater job satisfaction of the employees, with more flexibility and better adaptability. Beyond IFG/GM, the lifelong learning program may be transferable to other General Motors plants and to other plants in the automotive industry.

This 18-month project is being sponsored by the Office of Vocational and Adult Education, U.S. Department of Education, with additional support from Inland Fisher Guide Division of General Motors, United Auto Workers Local 969, and The Ohio State University. At the Ohio State Univerity, the project is being conducted by the Adult Literacy Center for Individual and Organizational Development. For additional information, please contact Dr. William Dowling, Department of Adult Education, The Ohio State University, and Sandra G. Pritz, Center on Education and Training for Employment.

Center Forms Partnership with Solidarity

"It's wonderful to work with people who need so much and truly appreciate all the help they can get from their friends in America," said Dr. Cathy Ashmore about her recent trip to Poland.

Ashmore, entrepreneurship program director, and Karen Kramer, program assistant, recently spent 17 days working with officials at the National Headquarters of Solidarity in Gdansk, Poland. The purpose of their trip was to formalize plans to adapt the American entrepreneurship training program to Polish economic reality.

"The unemployment problem in Poland is becoming very difficult as government-owned businesses lay off workers they can no longer afford," said Kramer. In Poland unemployed workers can collect about $1,500 in a lump sum that can be used to start small businesses. Therefore, training in how to start and grow a small business is essential. The Entrepreneurship Training Program in Poland will be part of the services offered in incubators throughout the country.

Solidarity, known as Solidarnasc in Poland, assisted the OSU team in meeting small business owners, associations, and service providers and in organizing an advisory committee in Gdansk to ensure the project's success. Solidarity's Economic Foundation is sending their representative Pioter Korynski to OSU to translate entrepreneurship training materials, Beyond a Dream and PACE (Program for Acquiring Competence in Entrepreneurship), into Polish. He will also study American incubators and seek additional entrepreneurship resources for the Polish business owners.

(continued on page 2)

APPENDIX C

INSTRUCTOR TRAINING

1. Instructional Materials and Approaches
2. Teacher Training Materials
3. Lesson Plan Formats
4. Summary of Issues and Practical Strategies
5. Training Agenda
6. Communications Skills Learning Objectives
7. Basic Math Skills
8. Using Booklet Survey
9. Writing Topics

INSTRUCTIONAL MATERIALS AND APPROACHES USED FOR THE GM-IFG-UAW LIFELONG LEARNING CENTER

Materials

Training manuals
Safety manuals
Job guides
Contract information
Charts
Timekeeping/pay information
Company news bulletins
Business unit news articles
GM-UAW publications
Supply order forms
Notification forms to correct problems on the job
Job-related, GM-IFG-UAW news articles, magazine articles & advertisements
Money-saving company suggestion forms
Miscellaneous company forms
Various texts with a basis on workplace skills
Newsroom (on computer)
Math-on-the Job
Microcomputer math
Ohio Monitor magazine

Approaches

Learner participation in educational goals & instructional materials
-Brainstorming
Previewing
Writing Process
DRTA
Relating skills & materials to learners' schemata
Whole language approach
Individual work
Group work
Problem solving techniques
Semantic mapping
Summarizing
Note taking
LEA approach

TEACHER TRAINING MATERIALS
Contents

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Metacognitive training (adapted from Gaskins 1987)

Sample lesson plan formats

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"Managing disruptive student behavior in adult basic education." ERIC Digest No. 54.

"Deterrents to participation in adult education." ERIC Digest No. 59.

"Strategies for retraining adult students: The educationally disadvantaged." ERIC Digest No. 76.

"Guidelines for working with adult learners." ERIC Digest No. 77.

"Supporting and facilitating self-directed learning." ERIC Digest No. 93.

"Teaching adults: Is it different?" ERIC Digest No. 82.

"A comparison of assumptions and processes of teacher-directed (pedagogical) learning and self-directed (andragogical) learning."

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Job-related basic skills. ERIC Digest No. 94

Workplace literacy. ERIC Trend and Issues Alert.

INSTRUCTIONAL LESSON PLAN FORMAT
WORKPLACE COMMUNICATIONS STRAND

DACUM Task Reference: ____________________

Learning Objectives Addressed	Learning Activities	Learning Materials
Work Context -	Reading -	
Task to perform -	Writing -	
Performance outcomes:	Oral Language -	

Skills highlighted -

Prereading -

Reading -

Postreading -

Learner Follow-up	Instructor Follow-up	
	This lesson	Next lesson

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INSTRUCTIONAL LESSON PLAN FORMAT
WORKPLACE MATHEMATICS STRAND

DACUM Task Reference: ______________________

Learning Objectives Addressed	Learning Activities	Learning Materials
Work Context - Task to perform - Performance outcomes:		

Skills highlighted -

Identifying the purpose -

Selecting an approach -

Gathering needed data -

Calculating -

Checking the solution -

Learner Follow-up	Instructor Follow-up	
	This lesson	Next lesson

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SUMMARY OF
ISSUES AND PRACTICAL STRATEGIES FOR PROMOTING PROBLEM-SOLVING//METACOGNITIVE SKILL DEVELOPMENT THROUGH MATH INSTRUCTION

Useful Definitions and Concepts

Cognition -- all forms of knowing and awareness (Adelaide). Cognition in the solution of a problem is simultaneously monitored by megacognition (Lesh).

Metacognition -- The vehicle for the construction of knowledge is self-reflection (Narode), self-communication (Manning), reflective abstraction (Piaget). Metacognitive skills--the ability to monitor one's thoughts--are essential components of competent mathematical performance. Metacognition includes a taxonomy with three variables (Flavell and Wellman, 1977): person variables (e.g. math anxiety); task variables (Find x if y=x+3); strategy variables (solution procedures). Metacognition refers to the knowledge and control one has of cognitive functioning (Garofalo).

Math Anxiety -- Induced by stressful classroom experiences featuring timed tests, reliance on rote memorization, formulas and public displays of right answers. It results in high levels of emotional interference that can disrupt memory and logic in problem-solving situations requiring generative knowledge. (Handler)

Generative Knowledge -- Knowledge that can be called up and used to solve problems, interpret new situations and to think about experience. Without generative knowledge, people lack confidence in their ability to retrieve or reconstruct procedures as needed. Math anxiety is often present when generative knowledge is low. (Handler)

Constructivism -- Ideas are mental constructions that cannot be taught. Teachers can ask questions so that their students can construct ideas for themselves (Narode) thereby creating generative knowledge. Though constructed individually, it is corroborated largely through consensus--a social activity.

Strategies That Promote Generative Knowledge Development and Metacognitive Strategies in Students

Self-communication

Provide a classroom atmosphere or appropriate place for students to talk aloud through an algorithm or word problem. Words spoken aloud cause us to scan our memories, looking for missing information (Manning). For someone to reflect on their thoughts, they must first make their thoughts manifest with words, pictures, diagrams, equations, graphs, music, art, facial and bodily expressions, etc. (Narode).

Model self-communication. Teachers should talk out loud as they think through problems, revealing errors, changes of strategies, memory blocks--all the muddling through associated with figuring things out. Learners need help understanding that there is usually more than one way to solve a problem and get the same correct results; one may, however, be more concise than another (Silver).

Use a vertically divided page for math work. One side is used for calculations, drawings, steps in the solution; the other side is used for continuous writing to record feelings, thoughts and self-talk. This teaches anxious learners to keep writing, even when thoughts break down, and helps to build knowledge of what one is feeling and thinking in the course of problem-solving. (Examples: Do I have everything I need to do this? This looks hard. Did I skip anything?)

Encourage students to continually ask themselves (and answer) questions such as the following:

- What do I do when I see an unfamiliar problem? Why?
- What can I do when I am stuck on a problem? Do these things always help?
- Which kinds of problems are hardest to do? Why?

Pair Problem Solving

Students learn from the teacher how to be interviewers. Students, or teacher and student, work in pairs; one solves a problem verbally while the other listens carefully, asking for thoughts, reasonings and clarification (Lochhead). Students then exchange roles and work on another problem. Cooperative learning is key: Knowledge, though constructed individually, is corroborated through consensus, a social activity (Narode).

The interviewer does not provide answers. Math is viewed as problem-solving without clear directions.

Examples of interview questions that guide the student through problem-solving:

- What are you thinking about the problem?
- What does the problem ask?
- What does the problem state?
- What pictures or diagrams can you draw?

Ask students to write thoughts as they think them, then read them and study their own thought processes.

Whether the math operations are clear and simple, or complex, you can encourage metacognitive development by asking students to-

- Estimate the answer
- Check their performance against your prediction records
- Keep records on the accuracy of their predictions
- Think of everything they do when they practice solving mathematics problems. Why do they do these things?

Guidelines for Helping Teachers Help Students Change the Way They Approach Learning Mathematics

Practice thinking outloud yourself. Let students hear you do this. Recognize that all problem-solving is difficult, requires motivation and confidence, and doesn't depend on memorization, speed, or being right the first time. Ask students to help you verify your own metacognitive processes.

Choose problems and exercises that promote thinking. This usually means interesting word problems related to students' interests. It also means avoiding drills where the operations are all the same. If drills are necessary, precede each problem with student estimates of what the answer might be.

Make self-communicating and pair problem-solving an integral part of the classtime. Metacognitive skills only become clear through verbalization. Generative knowledge can only be developed from within the student, guided by questions that help students to think about how they think.

Organize what you know and recognize what you don't know; move in a goal-oriented way alert to ideas worth following vs. rejecting. Use systematic assessment and review--constant questioning.

- Value questions
- Remind students to check for errors, perform inverse procedures, draw sketches, identify strategies used repeatedly
- Ask why--make it clear that math is meant to make sense and that people must construct their own meaning
- Link simple familiar knowledge to more advanced ideas explicitly
- Allow time for reflection and to let learners clarify ideas for themselves
- Include discussion--promotes reflection and review (Adelaide)

Emphasize mathematical behavior, not mathematical content.

- If prone to computational errors, encourage self-monitoring and checking.
- If a problem is complex, have students take more time to explore it and plan possible methods of solution.

Remember that affective factors influence mathematical performance. Learners need to develop confidence that they are capable of doing math and that math is not only for geniuses.

- Encourage self-management skills to regulate one's activity. Self-management skills may be at the heart of success in problem-solving performance (Garofalo).

Research shows that instruction emphasizing self-regulation (self-management) yields better results than (Brown)--

- instructing or inducing students to use a particular strategy (blind)
- doing the above, but including information about the significance of the strategy (informed)

In self-regulation, (self-management) the teacher offers information about, and activities that promote planning, monitoring, and assessing the implementation of the strategy. In other words, effective teachers help students think about how they think, but let them discover their own solutions.

"It is far more difficult for a student to learn metacognitive skills from a teacher who shows them how to do a problem that from one who does not." (Narode)

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Instructor Training - Workplace Literacy Project
Literacy Strand - OSU/IFG/UAW

September 11 and 12, 1990
(Tuesday and Wednesday)

9:00 a.m. - 12:00 noon at the Lifelong Learning Center

I. Assessment/Diagnosis procedures and instruments
  A. Reading Behavior Questionnaire
  B. Cloze
  C. Gap
  D. RMI
    1. APO Manual
    2. Non-fiction piece
    3. Fiction piece
  E. Writing Sample
  F. Booklet surveys

II. Instruction
  A. Review of Key Points/Questions in Teacher Training Materials
    1. LEA procedures
    2. Cultural awareness - see handouts
  B. Strategies
    1. Brainstorming
    2. Vocabulary
    3. DRTA
    4. Directed Reading Lesson
    5. Writing
      a. Journals
      b. Portfolios
      c. Newsletter articles
      d. Summaries
      e. $ saving suggestion write-ups for plant
      f. Other ideas
        -VT's list
        -Ask Betty - re portfolios
        -Info from Ralph, Mark, Debbie, etc.
  C. Role Play Demonstration

Learning-to-Learn

What are the objectives of this training?

- Understanding the nature of knowledge.
- Being able to organize learning activities.
- Developing the critical skills of evaluation.
- Understanding how to apply appropriate thinking (convergent, divergent, critical, and intuitive).
- Understanding the importance of and being able to do self-assessment and needs assessment.

What are cognitive learning-to-learn skills?

- Understanding the nature of knowledge.
- Organizing learning activities.
- Learning critical evaluation skills.
- Thinking convergently, divergently, critically, and intuitively.
- Relating and recalling information.
- Relating and organizing information.
- Developing basic skills (reading, writing, computing).
- Problem solving.
- Understanding the feasibility and usefulness of learning to learn or learning-process consciousness.
- Transferring learning strategies.
- Communicating, including active listening and viewing.
- Developing knowledge about resource availability and assessment.
- Organizing learning/development activities.
- Understanding cognitively the difference between learning and being taught.

What are personal understanding learning-to-learn skills?

- Understanding the self as learner in terms of
    - preferred styles and adaptations.
    - personal resources inventory (assessment).
    - personal awareness and monitoring.
- Conducting self-assessment and needs assessment in terms of
    - sense of direction.
    - sense of purpose.
    - life planning.
    - ability to create/generate resource.
- Building confidence, persistence, openness, and flexibility.

What are interpersonal learning-to-learn skills?

- Accessing and evaluating resources.
- Giving and receiving feedback by
    - seeking information nondefensively.
    - seeking important feedback.

    - analyzing feedback.
    - giving feedback when needed.
- Developing strategies for performing contextual analysis.
- Developing strategies for using collaborative inquiry.
- Understanding how to find and use resources, including expert sources, peer support, and media.

Source: Adapted from Smith, 1988.

Creative Thinking

What are the objectives of this training?

- Demonstrating to participants why creative thinking is essential for success in the workplace.
- Mastering some techniques of creative thinking that can be used to increase levels of creative response on the job.
- Building skills in applying creative thinking to group and individual problem-solving situations through instruction, practice, and reinforcement exercises.

What is involved in problem recognition and definition skills in creative problem solving?

- Trainer and participants examining intuitive problem-stating style.
- Participants practicing several procedures or parts of procedures for defining problems.

What is the process for generating ideas?

- Trainer and participants examining idea-generation procedures (unusual uses for mundane items exercise).
    - Trainer selecting a noun randomly and instructing participants to think of as many uses as possible.
    - Trainer has participants picking a common problem and listing as many solutions to the problem as possible.
- Participants practicing several idea-stimulating procedures or parts of procedures, working individually.

What is a basic creative problem-solving procedure?

- Trainer facilitating a brainstorming type of interactive group session that combines definitional ad idea-generating procedures.
- Trainer and participants examining methods for evaluating ideas that were generated.
- Trainer encouraging participants to invent their own problem-solving systems by combining parts of procedures that have been discussed and practiced.
- Trainer analyzing elements of day's activity from the participants' point of view as "what/why" statements.

What is the role of interpersonal skills awareness?

- Trainer preparing the way for interpersonal aspects of creative problem solving; exercises and discussion topics including Kolb's learning style inventory and active listening.

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How do you extend and modify basic problem-solving procedures to make them useful in specific situations?

- Trainer introducing the concepts of personal accountability for and multi-dimensionality of ideas, relating these to generalized framework.
- Participants preparing and implementing personal action plans.
- Using a matrix, participants combining material into "what/why" constructs and applying them to case studies in creative problem solving.

Source: Adapted from Rickards and Freedman, 1979, p. 6.

Listening

What are the objectives of this training?

- Making participants aware of the importance of listening in their everyday work life.
- Improving participants' listening skills as they directly relate to participants' jobs.
- Teaching participants techniques for ongoing individual self-development of listening skills.
- Increasing participants' value to the organization by helping them to do their job better.

Was what you heard really what the speaker meant? Facts About Listing Skills

- Discussion about human beings as listeners.
- Discussion of the listening process: percentage of time spent in listening activities, listening versus hearing, factors that affect listening, and so on.
- Videotaping of participants, replaying of video, and discussion of what participants see in themselves as listeners.

How do you know which of the four styles of listening (relaxed listening, social listening, active listening, defensive listening) is your most dominant?

- Presentation of the continuum of the four styles of listening,
- Group problem-solving exercise (for example, trainer divides participants into four groups and assigns one style to each; groups must draw up a profile of their assigned style--body language cues, vocal indicators, and typical verbal responses--and be prepared to demonstrate that style).
- Debriefing and demonstration of each style and discussion as to when each is appropriate and when inappropriate.

What are the barriers to effective listening, and do you remove/reduce them?

- Discussion of sender barriers, listener barriers, and environmental barriers.
- Group brainstorming session followed by problem-solving exercise (trainer divides participants into at least three groups, reviews rules of brainstorming, assigns time frame for each phase, tells each group to select one or two key barriers from list and draw up a plan of action for removing/reducing those barriers).

What are strategies for better listening?

- Presentation of four basic strategies for improving listening skills: (1) learning to empathize and read people, (2) being flexible in your styles of listening, (3) paying closer heed to the environment, and (4) getting feedback about your listening pattern/tendencies from people whose opinion you value.
- Practical exercising to increase skills (video, if possible).
- Replay of video and/or discussion of how to measure improvement.

How does listening improve or weaken your health?

- Discussion of medical findings regarding listening styles.
- Formulation of a plan of action for improving an individual's listening skills and/or those of the team or unit.

Source: Adapted from Elsea, 1988b.

Oral Communication

What are the objectives of this training?

- Making participants aware of the importance of oral communication in their everyday work life.
- Improving participants' on-the-job oral communication skills.
- Teaching techniques for ongoing individual self-development of oral communication skills.
- Increasing participants' value to the organization by helping them to do their job better.

Skill One: Know Your Own Style of Communication

How can you *not* communicate?

- Facts about amount of time spent communicating.
- Why it is important to make good first impressions.
- Explanation of how first impressions are formed in the first two to four minutes of a communication exchange.
- Three key questions effective communicators ask and answer
    - What do you *look* life?--Nonverbal Communication
        - Discussion of body language and appearance and the fact that these nonverbals constitute 55 percent of the meaning of the message; importance of culture, gender, authority/status
        - Practical exercise that highlights importance of nonverbals (for example, participants may check out personal space or whether they like to be touched)
    - What do you *sound* like?--Vocal Communication
        - Discussion of voice characteristics such as rate, pitch, and loudness; how the voice contributes 38 percent of the meaning in face-to-face interactions and 70-90 percent when one is on the phone
        - Practical exercise that demonstrates how rate or loudness can energize or calm people down (if group is small, get brief sample of voice on tape recorder)
    - What do you *say*?--Verbal Communication
        - While language is worth only 7 percent in first few moments, it will be worth more if and when the receiver gets past the nonverbal and vocal to choice of words, arrangement of and support for ideas.
        - Some word choices are more powerful than others.
        - Consistency between *what* is said and *how* it is said is important; if there is a discrepancy, people believe the *how*.

Are you what you value? Assessing Your Style of Communication

- Option A: Distribute a self-assessment instrument (SAI) that "measures" each participant's style of communication. Score SAIs with the group so that each participant knows his or her dominant and backup styles.

- Option B: Videotape some participants (or all, if the group is small) in a brief role-playing situation where they respond to a typical job-related situation.

What kind of action styles do you use to communicate?

- Profiles of four styles of communication
    - Describing each style briefly, or showing video if Option B is used.
    - Having group draw up nonverbal, vocal, and verbal characteristics for each style.
    - Having participants discuss the kind of physical environment each style prefers (for example, pictures of family, tidy desk, lots of light).
- Brainstorming session on the strengths and weaknesses of each style on the job.
- Tips on improving body language and/or voice.
- Practical exercise using audio or video
    - Focusing on one change participants think should be made in their voice or body language.
    - Giving some or all participants one or two minutes before a camera or microphone to try out new behaviors.
    - Replaying tape and reinforcing results; making suggestions for further change. Consider having a brief critique sheet available for participants to fill out.
- Activity plan to improve participants' oral communication skills.

Skills Two and Three: Understand and Adjust to Other Styles of Communication

How can you *not* communicate? Power of Communication

- Facts about interpersonal communication and success in the workplace.
- *First* impression, *best* impression: How impressions are formed and why they are important.
- Three key questions effective communicators ask and answer
    - What do you *look* like?--Nonverbal Communication
    - What do you *sound* like?--Vocal Communication
    - What do you *say*?--Verbal Communication
- Brief synopsis of each of these three channels of communication, noting importance of culture, gender, power, physical response, and *where* interactions take place.
- Self-assessment instrument.

Are you what you value? Assessing Your Style of Communication

- Scoring of self-assessment instrument.
- Profile of four styles of communication--brief overview of each style.

How do you value others? Understanding Other Styles of Communication

- Problem-solving exercise (those with each style meet in a small group to draw up a profile of what they look like, sound like, and say and their environmental preferences--for example, messy desk, plants and pictures, chair for guests).
- Debriefing (each style reports out its profile).

- Discussion period (may include contributions and weaknesses of each style in the workplace).

What happens when styles collide? Adjusting Your Style to the Communication Styles of Others

- Small group exercise
    - Assign each group a style unlike its own.
    - Have each group draw up a plan of action to adjust its style to the one assigned (some adjustments might be nonverbal, other vocal, and still others verbal).
    - Have each group also note what "bugs" its members about the assigned style.
- Having each group report out its plan and the participants representing that style react to the "adjustments."
- Tips on expanding your range of styles and using backup style(s).

What action styles do you use to communicate?

- Case study (assign participants to groups composed of representatives of the four styles; give each a brief case study; groups must first discuss solution from point of view of each of the four styles, then pick best style or combination of styles).
- Role playing (using case study as scenario, either in small groups or before entire group) with focus on making adjustments in your own style (this can be videotaped).
- Discussion (replay video or rework role-playing scenes).

Source: Adapted from Elsea, 1988a.

Reading

What are the objectives of this training?

- Improving job-related reading skills as they relate to immediate job requirements.
- Improving job performance.
- Enhancing participants' chances of job stability and upward job mobility through improved reading skills
- Increasing company productivity through improving individual reading capabilities.

How do you develop skills in literal comprehension?

- Identifying factual details or specifications within text.
- Following detailed, sequential directions to complete a task.
- Determining the essential message of a paragraph or selection.

What techniques are used to locate information within a text?

- Using table of contents, index, appendixes, glossary, systems or subsystems to locate information.
- Locating page, title, paragraph, figure, or chart needed to answer questions to solve problems.
- Using skimming or scanning to determine whether or not text contains relevant information.
- Cross-referencing within and across source materials to select information to perform routine tasks.
- Using a completed form to locate information needed to complete a task activity.

What is involved in learning how to compare ad contrast information?

- Combining information from multiple sources that contribute to the completion of a task activity.
- Selecting parts of a text or visual materials to complete a task activity.
- Identifying similarities and differences in objects.
- Determining presence of defect or extent of damage.
- Matching objects by size, color, or significant markings.
- Classifying objects by size, color, or significant markings.
- Distinguishing between relevant and irrelevant information in text or visuals.

How do you recognize cause and effect and predict outcomes?

- Using common knowledge to avoid hazard or injury.
- Applying preventative measures prior to task to minimize security or safety problems.
- Selecting appropriate course of action i a emergency.

How to you use charts, diagrams, and schematics?

- Obtaining a factor specification from a two-column chart to find information.
- Obtaining a factor specification from an intersection of row by column on a table or chart; by using a complex table or chart requiring cross-referencing within text material.
- Applying information from tables or graphs to locate malfunctions or to select a course of action.
- Using a simple linear path of an organizational chart to list events in sequential order.
- Using the linear path of a flowchart to provide visual and textual directions to a procedure, to arrive at a decision point, or to provide alternative paths in problem solving.
- Isolating each major section presented in a schematic diagram.
- Identifying the components within each section of a schematic diagram.
- Isolating a problem component in a schematic diagram and tracing it to the cause of the problem.
- Interpreting symbols to indicate direction of flow, text points, components, and diagrammatic decision points.
- Identifying details, labels, numbers, and parts from an illustration or picture.
- Identifying parts from a key or legend.
- Interpreting a drawing of a cross section for assembly or disassembly.
- Following sequenced illustrations or photographs as a guide.

How do you become competent i inferential comprehension?

- Determining figurative, idiomatic, ad technical meanings of terms by means of context clues or reference sources.
- Making an inference from text that does not explicitly provide required information.
- By organizing information from multiple sources into a sequenced series of events.
- Interpreting codes and symbols.

How do you improve vocabulary?

- Recognizing common words and meanings.
- Recognizing task-related words with technical meanings.
- Identifying meanings from sentence context.
- Recognizing meanings of common abbreviations and acronyms

Vocabulary Vocabulary

- Recognizing common words and meanings.
- Recognizing task-related words with technical meanings.
- Recognizing the meaning of common abbreviations and acronyms.

Literal comprehension

- Identifying factual details of specifications in texts.
- Following detailed, sequential directions to complete a task.

- Determining the essential message of a paragraph.

Locating information within a text

- Using table of contents, index, appendices, glossary, to locate information.
- Locating page, title, paragraph, figure, or chart needed to answer questions or solve a problem.
- Using skimming or scanning to determine if text contains relevant information.

Using charts, diagrams, and schematics

- Using a complex table or chart requiring cross-referencing.
- Applying information from tables or graphs to locate malfunctions or to select a course of action.
- Isolating each major section presented in a schematic diagram.
- Following sequenced illustrations or photographs as a guide.

Comparing and contrasting

- Combining information from multiple sources that contribute to the completion of a task.
- Determining presence of a defect of extent of damage.
- Classifying objects by size, color, or significant marking.

Inferential comprehension

- Determining meaning of figurative, idiomatic, and technical meanings of terms, using context clues or reference sources.
- Making an inference from text that does not explicitly provide required information.
- Interpreting codes and symbols.

Recognize cause and effect, predicting outcomes

- Using common knowledge to avoid hazard or injury.
- Applying preventative measures prior to a task to minimize security or safety problems.
- Selecting appropriate course of action in an emergency.

Source: Adapted from Philippi, 1988.

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Writing

- *Task environment:* From a job situation, an employee first identifies the general writing problem by

Model	*Application*
- anticipating the audience,	- Who will be reading what I am going to write?
- defining the purpose,	- What is it that I need to write about?
- identifying the portion(s) of the written product developed so far.	- Has any part of this task already been completed?

Schema/Schemata (mental plan or outline/plans or outlines: From long-term memory, an employee accesses knowledge of the task, topic, audience, strategies, and plan of attack.

	- What do I know about those who will read my communication? What do they expect? What are they able to understand?
	- What job knowledge do I need to complete the written product?
	- What do I know about effective ways to structure and produce the written product I need?

Literacy problem-solving process: Using the information gathered from the task environment and mental schemata, an employee plans and prepares a draft product.

- The employee plans by generating ideas, organizing ideas, and setting goals for substeps to task completion, subgoals in task production, and exploration of topic.	- What is the information that I need to communicate?
- The employee translates plans to action by putting ideas on paper.	- What is the best way to communicate this information? - What steps will I need to take, and in what order?
- The employee reviews by evaluating goals and revising, a continual process.	- Did I write what I needed to say clearly and accurately? - Will my reader(s) understand what I have written? - Would a particular revision improve the clarity or accuracy of what I need to say?

Model	*Application*
Monitor: Throughout the problem-solving process, an employee continually moves between text and task.	- Am I using my job knowledge correctly in the content of my writing? - Do these words best express the information I need to communicate? - Is this what my reader needs to know? Will my reader be able to understand this? - Is there a clearer way to state my information?

Source: Adapted from Mikulecky, Ehlinger, and Meenan, 1987.

BASIC MATH SKILLS

Whole Numbers

1. Count a set of up to 100 objects and state or write the number of objects counted. (1A.1)

2. Identify place value of digits in a given whole number with up to 7 digits. (1A.2)

3. Read a given whole number less than 10 million and write its name in words. (1A.3)

4. Write a whole number less than 10 million given the word name of the number. (1A.4)

5. Arrange a set of whole numbers in ascending or descending order. (1A.5)

6. Perform addition of whole numbers, given instructions such as: What is the total of 8 and 5? 8 + 5 = ___? 8 plus 5 is ___? Find the sum of 8 and 5. Add 8 and 5. (1B.1)

7. Find the sum of a set of whole numbers of 1-5 digits, including cases where carrying is required. (1B.2)

8. Perform subtraction of whole numbers, given instructions such as: 8 minus 5 is ___? If you had 8 and gave away 5, you would have ___. Subtract 5 from 8. 8 - 5 = ___? Find the difference of 8 and 5. (1B.3)

9. Find the difference of two 1-5 digit numbers, including cases where borrowing is required. (1B.4)

10. Solve a routine word problem using subtraction and/or addition of whole numbers. (1B.5)

11. Perform the above operations with the aid of a calculator. (1B.6)

12. Perform multiplication of whole numbers, given instructions such as: 6 x 2 = ___? 6 times 2 is ___? Six twos are ___? The product of 6 and 2 is ___. (1C.1)

13. Find the product of a given pair of whole numbers of which one number is up to 5 digits and the other number is up to 3 digits. (1C.2)

14. Perform division of two simple whole numbers (no remainder), given instructions such as: 6 divided by 2 is ___? 6 ÷ 2 = ___? 2 into 6 goes ___ times. The quotient of 6 divided by 2 is ___. (1C.3)

15. Find quotients of 1-5 digit dividends and 1-3 digit divisors, including cases where there are remainders. (1C.4)

16. Solve routine word problems using multiplication and/or division of whole numbers. (1C.5)

17. Perform the above operations with the aid of a calculator. (1C.6)

18. Use addition, subtraction, multiplication or division, as appropriate, in the solution of routine occupational word problems with whole numbers. (1D.1)

19. Round off a number to the nearest ten, hundred, thousand, ten thousand, or hundred thousand. (1E.1)

Fractions

20. In a given diagram or illustration, name the fraction that represents a given number of parts out of a total number of equal parts. (2A.1)

21. Reduce a fraction to its simplest form (lowest terms). (2A.2)

22. Change improper fractions to mixed numbers and mixed numbers to improper fractions. (2A.3)

23. Write equivalent fractions for a given fraction, given a new numerator and denominator. (2A.4)

24. Arrange a set of fractions and/or mixed numbers in ascending or descending order. (2A.5)

25. Write what fractional part one number is of another in simplest form. (2A.6)

26. Calculate the sum in simplest form of two or three common fractions with like denominators. (2B.1)

27. Calculate the sum in simplest form of two or three common fractions with unlike denominators. (2B.2)

28. Calculate the sum in simplest form of two or three mixed numbers with like and unlike denominators. (2B.3)

29. Calculate the sum in simplest form of two or three numbers that include at least one proper fraction and one mixed number. (2B.4)

30. Calculate the difference in simplest form of two common fractions with like denominators. (2B.5)

31. Calculate the difference in simplest form of two common fractions with unlike denominators. (2B.6)

32. Calculate the difference in simplest form of two mixed numbers that have like denominators, including cases where borrowing is required. (2B.7)

33. Calculate the difference in simplest form of two mixed numbers that have unlike denominators, including cases where borrowing is required. (2B.8)

34. Solve a routine word problem using addition and/or subrection of fractional numbers. (2B.9)

35. Perform the above operations with the aid of a calculator. (2B.10)

36. Calculate the product in simplest form of (a) a common fraction and a whole number, or (b) two common fractions. (2C.1)

37. Calculate the product in simplest form of (a) a mixed nuber and a whole number, or (b) two mixed numbers. (2C.2)

38. Calculate the product in simplest form of two or three mixed numbers that include at least one common fraction and one mixed number and/or one whole number. (2C.3)

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39. Calculate the quotient in simplest form of (a) a common fraction divided by a whole number, (b) two common fractions, or (c) a whole number divided by a common fraction. (2C.4)

40. Calculate the quotient in simplest form of (a) a mixed number and a whole number, (b) a mixed number and a common fraction, or (c) two mixed numbers. (2C.5)

41. Solve a routine word problem using multiplication and/or division of fractional numbers. (2C.6)

42. Peform the above operations with the aid of a calculator. (2C.7)

43. Solve a routine word problem using addition, subtraction, multiplication, and/or division of fractions. (2C.8)

Decimals

44. Read a given value less than $10,000,000.00 and write its name in words. (3A.1)

45. Write a value less than $10,000,000.00, given the word name of the amount. (3A.2)

46. Add columns of dollars and cents values, including amounts from $.01 to $9,999.99. (3A.3)

47. Subtract one amount of money from another with values up to $10,000.00. (3A.4)

48. Calculate the total cost of up to 25 items of equal value. (3A.5)

49. Calculate the unit cost of an item when given the total cost of up to 25 of the same item. (3A.6)

50. Round off decimals to the nearest cent. (3A.7)

51. Round off an amount to the nearest dollar, ten dollars, hundred dollars, or thousand dollars. (3A.8)

52. Perform the objectives 3-6 with the aid of a calculator. (3A.9)

53. Read a given 1-4 place decimal fraction and write its name in words. (3B.1)

54. Write a 1-4 place decimal fraction, given the word name of the number. (3B.2)

55. Arrange a set of decimal fractions in ascending or descending order. (3B.3)

56. Round off a decimal fraction to the nearest tenth, hundredth, thousandth, or ten thousandth. (3B.4)

57. Calculate the product of two decimal fractions when rounding off is (a) not required or (b) required. (3C.1)

58. State or write the product of a number and a power of ten between .001 and 1,000 without written calculation. (3C.2)

59. Calculate, to a given number of decimal places, the quotient of a whole number divided into (a) a whole number larger than the divisor, (b) a whole number smaller than the divisor, or (c) a decimal fraction. (3C.3)

60. Calculate, to a given number of decimal places the quotient of a decimal fraction divided into (a) a decimal fraction or (b) a whole number. (3C.4)

61. State or write the quotient of a number divided by a power of 10 between .001 and 1,000 without written calculation. (3C.5)

62. Solve a routine word problem using multiplication and/or division of decimals. (3C.6)

63. Excepting objectives 2 and 5, perform the above operations with the aid of a calculator. (3C.7)

64. Calculate the sum of a set of decimal fractions. (3D.1)

65. Calculate the difference of two decimal fractions. (3D.2)

66. Solve a routine word problem using addition and/or subtraction of decimal fractions. (3D.3)

67. Perform the above operations with the aid of a calculator. (3D.4)

68. Solve a routine word problem using addition, subtraction, multiplication, and/or division of decimal fractions and common fractions or mixed numbers. (3E.1)

Percent

69. Identify a percent as equivalent to a fraction with 100 as the denominator. (4A.1)

70. Identify the % symbol by writing in words a given percentage. (4A.2)

71. Calculate a percent of a number of the following types: (a) 5% of 170 = ___. (b) 5.7% of 170 = ___. (c) 5.7% of 17.43 = ___. (4D.1)

72. Solve a routine word problem involving calculation of a percent of a number. (4D.2)

73. Perform the above operations with a calculator. (4D.3)

Mixed Operations

74. Convert (a) a common fraction or mixed number to a decimal fraction or (b) a decimal fraction to a common fraction or mixed number. (5A.1)

75. Convert (a) a percent to a fraction or (b) a fraction to a percent. (5A.2)

76. Convert (a) a percent to a decimal or (b) a decimal to a percent. (5A.3)

77. Use standard tables to convert (a) a fraction to a percent or (b) a percent to a fraction. (5A.4)

78. Write from memory (without written calculation) (a) the decimal and percent equivalents of 1/2, 1/3, 1/4, 2/3, 3/4, 1/5, 2/5, 3/5, and 4/5; (b) the conversion fraction equivalent of .5, .33 1/3, .66 2/3, .25, .75, .2, .4, .6, and .8; or (c) the fraction equivalents of 50%, 33 1/3%, 66 2/3%, 25%, 75%, 20%, 40%, 60% and 80%. (5A.5)

Instructors:

To Administer the RMI

1. Have the student read the passage on "Waste," into the tape recorder.
2. Ask the student to re-tell what was just read, recording every word onto the re-telling outline.
3. Use the probes on the bottom of the page to get the students to recall more information.
4. Give the tape and outline to Johanna and Verna to assess with you.

WASTE

Waste is anything other than the minimum amount of equipment, materials, parts, space and workers time, which are absolutely essential to add value to the product.

THE SEVEN WASTES

1. Waste from overproduction.
2. Waste of waiting time.
3. Transportation waste.
4. Processing waste.
5. Inventory waste.
6. Waste of motion.
7. Waste from product defects.

WASTE FROM OVERPRODUCTION

This waste is created by producing goods over and above the amount required by the market. This is typically created by getting ahead of the work. When this happens, more raw materials are consumed and wages are paid for unneeded work, thereby creating unnecessary inventory. This in turn requires additional handling of materials. We should make sure that only the amount required by the customer is produced at high quality, low cost, and at the time needed.

WASTE OF WAITING TIME

This can be caused by waiting for a jobsetter when a machine quits running, then after he finds the problems you might have to wait longer for an electrician, or maybe a machine repair. How about waiting for a stockhandler. Now an APO can call their own electrician or get their own stock.

TRANSPORTATION WASTE

Ill-planned layouts may make long-distance transportation necessary. They can also result in double or triple handling of parts that have been put away in a disorderly manner and kept in temporary storage and switching storage locations. Often we are amazed to discover how many miles a product must travel through the factory before it is completed.

In order to eliminate this waste, improvement in layout, coordination of processes, methods of transportation, housekeeping and workplace organization need to be considered.

PROCESSING WASTE

When fixtures are not well maintained or prepared operators may have to use extra effort in processing the materials. Certain defects may be produced by these inappropriate procedures.

INVENTORY WASTE

Excess inventory increases the cost of a product. It requires extra handling, extra space, extra interest charges, extra people, extra paperwork, and so on.

- Dispose of obsolete materials.
- Do not produce items not required by the subsequent process.
- Do not purchase or bring in items in large lot sizes.
- Manufacture products in small lots.

WASTE OF MOTION

Whatever time is not spent in adding value to the product should be eliminated as much as possible. Pick and place is another example of movement that can be reduced by keeping parts or tools close to where they are used or even eliminated by using chutes and other fixtures. Machines should be placed so that the operator's walking time is minimized.

WASTE FROM PRODUCT DEFECTS

When defects occur at one station, operators at subsequent stations waste time waiting, thereby adding cost to the product and adding to production lead time. Furthermore, rework may be required or the defective products are scrapped. If a defect has occurred in the assembly operations, additional labor is required to disassemble the product, and additional parts are required for reassembly. Obviously, schedules must be adjusted to accommodate these changes.

Sorting out bad parts from good parts also requires additional labor. There is a waste of both the material and the value of work already added to the parts.

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An even worse case exists when customers find defects after product delivery. Not only are warranty costs and additional delivery costs incurred, but future business with the customer as well as market share may be lost.

SIMPLIFY COMBINE AND ELIMINATE

The difficulty in eliminating waste is that most of us have not directed our efforts to finding waste and eliminating it.

The basic idea of improvement is simple. We want to do our work easier, faster, cheaper, better, and safer. To do so, a basic approach to improve our operation is to simplify, combine, and eliminate.

SIMPLIFY

Color coding is one of the simplest methods to eliminate unnecessary confusion in daily plant operations. Corresponding bolts, tools, and dies can be painted the same color to help with quick setup operations, or lines or departments can be defined by certain colors for easy transferring of parts and materials.

COMBINE

A machine operation uses machines, each handled by a different operator. Since each machine is highly automated, the operator's time is not well utilized. They spend most of their time watching the machine operation-adding no value to the product. By moving the machines closer together and combining the work, one operator could run both machines and still produce the same total output.

ELIMINATE

In a setup operation, adjustment typically took a large portion of the operator's time. But simple solutions can often be found to eliminate adjustment work. Die height was standardized so that setup was much simpler, eliminating the adjustment process. The same idea may be applied in other areas such as eliminating horizontal adjustment by providing locator pins or standardizing bolt heads.

During transfer of materials between sequential processes, unnecessary energy was wasted in double handling of the materials, trucking, and pick and place of materials on the conveyor.

This waste was eliminated by synchronizing the neighboring processes and developing one-piece flow production, passing the work-piece from one operator to the next with less material handling.

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RMI Re-telling Outline - **SWG Training Program for APO's**

"Waste"

1. Waste from overproduction

2. Waste of waiting time

3. Transportation waste

4. Processing waste

5. Inventory waste

6. Waste of motion

7. Waste from product defects

Simplify

Combine

Eliminate

**Probes: Is there anything else you want to add? Why don't you tell me some more about (overproduction, waiting time, etc).*

The Booklet Surveys can be used for several purposes--

1. To introduce the reader to the format of the book.
2. To assess proficiency in various reading subskills and strategies.
3. To determine how a reader reacts to written questions.

The following outline explains the rationale for each question in the booklet surveys:

Charting EasyBook

1. Use of prediction strategy
2. Awareness of charts; use of introductory material; skimming
3. Format - table of contents
4. Identification of a statistical chart/graph
5. Format - definitions of key concepts
6. Identification of a pie chart
7. Format - purpose for reading
8. Format - table of contents
9. Format - work sheets
10. Vocabulary

SWG - Training Program for APO's

1. Format; higher level thinking
2. Format; use of introductory material; skimming
3. Format; skimming; literal thinking; vocabulary
4. Format - identification of topics
5. Format - glossary; awareness of other word catalogues
6. Format - visual aid
7. Format - list; skimming
8. Vocabulary
9. Identification of charts
10. Identification of forms; format

Booklet Survey

CHARTING EASYBOOK

1. From the title, what do you think this booklet will be about?

2. Turn to page 2. How many types of charts will you learn about? Name them:

3. Turn to page 3. How many parts are there to this booklet?

4. Turn of page 4. What would you call figure 1?

5. Turn to page 5. Why are those words in a box?

6. Turn to page 6. What is that circle called?

7. Turn to page 14. Why is that "purpose" information given there?

8. Turn to pages 21, 44, and 50. Why is the page repeated?

9. Turn to page 43. What is that "self check"? Why is it included in the booklet?

10. Look at the charts on pages 67-72. What do you think process control charting might be?

Booklet Survey

SYNCHRONOUS MANUFACTURING WORK GROUPS - TRAINING PROGRAM FOR ALL-PURPOSE OPERATORS

1. Turn to the title page. What 3 groups put this booklet together?

   What do you think that is important to know?

2. Turn to the page which says *The Training Program*. How many parts are there in the training program?

3. Turn to the 3rd page. How many features make up a synchronous work group?

   What do you think "Synchronous Inland-Fisher Guide *Style*" means?

   What do you think the word accountability means?

4. Look at the next 2 pages. Why are certain words in boxes?

5. Turn to the page that says "Definitions." Why is that page included in this booklet?

Name a place, other than a dictionary, where you might find definitions of words.

6. Turn to the **wheel** on the next page. Why do you think that wheel is there?

7. Look at the page which lists the "Job Duties" for an All Purpose Operator. How many duties are there?

8. What do you think the word **quality** means?

   What does GM think **quality** means?

9. Look at the pictures throughout the book. What are those kinds of pictures called?

10. Turn to the last few pages of the book. What are on those pages?

    Why do you think they are included in this booklet?

Writing ideas:

- Safety: Define "safety on the job."
  Why is it important for you to think about (be aware of) safety on your job?
  Write about safety . . .
    Begin by brainstorming: Where do you practice safety? When?
      Example: with children
        in a car
        on the job
        using power tools, etc.
- The most important things in my life.
- How I (do) (or would like to) spend my leisure time.
- My all-time top 5 favorite movies and why.
- Define change.
- My goals --- at 18?
  now?
  what might they be at 65?
- My views on the Middle East "crisis."
- Goals for my children, if I could only set them . . .
- My husband (wife) drives me crazy when . . .
- The most important issue in my life . . .
- The most important issue in the world . . .
- The best bargain I ever ran across . . .
- My favorite vacation spot . . .
- I love (hate) to shop for . . .
- What I like most about my job.
- What I like least about my job.
- My favorite restaurant.
- I would love to be stranded on a desert island with . . .
- If I had a million dollars . . .

- If I could change . . .
- A never-ending battle.
- When I was a kid (what made me different from kids today?)
- My favorite teacher in school.
- My least favorite teacher in school.
- The craziest teacher in school.
- What I liked most about school.
- What I liked least about school.
- My fondest memory of growing up, from when I was a child.
- My favorite person as a child.
- My least favorite person as a child.
- What really irks me.
- Kids do (say) the darndest things.

Center on Education and
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800-848-4815 or 614-292-4353

MEMORANDUM

Date: January 23, 1991

To: Lifelong Learning Center Instructors: Janet, Margie, Pat

From: Nancy and Sandy

Re: Work-related Math Scenarios

Here are 60 scenarios from the machinist occupation reflecting a variety of skills on the math skills list. You already have several of these, including problems for practice. We will continue to forward practice problems to you as we complete them, but in the meantime, if additional practice is needed, you may use resources that you already have on hand.

You will need to build lesson plans around these scenarios using the following strategies:

1. Use the APO chart and Charting Easy or SPC materials to reference the math skill.
2. Work with learner to brainstorm IFG related scenarios reflecting the skills, as well as uses they can think of in their own lives. Create problems for practice.
3. Use the scenarios in reading/writing lessons as well as for generating math practice.
4. Practice the skill using pencil and paper and the JBMP computer program.
5. Check solutions to practice problems by asking learner to verify with calculator, if appropriate.

Please use this memo as resource for developing lesson plans.

January 2, 1991

Dear Teachers:

Hear is a set of 8 math lessons that include Tasks 2-12 on the Math Skill Objectives for Job-Related Basic Math Program list (enclosed). A sample lesson plan was developed for Tasks 8 and 9, and is included in this packet. You may want to further combine any of these tasks to reflect the APO DACUM chart

Keying off of the sample lesson plan, you will need to --

1. identify the DACUM task reference
2. establish the work context, and
3. select IFG learning materials in addition to these.

The Charting Easybook plus anything to do with SPC training should serve the purpose. In addition, you'll want to ask the learners for examples from the plant to build the connection between the problems and the workplace.

We know you are anxious to get fractions, and they will be in the next batch. Let me know how this set-up works.

Good luck.

Nancy Puleo

NP/dw

Enclosures

APPENDIX D

SAMPLE MATH LESSONS

1. Lesson Plan (Subtracting)
2. Workplace Application (Transition Time)
3. Related Math Scenarios
4. Additional Practice
5. Lesson Plan #2 and Supporting Workplace Curriculum Materials

Math Task #8 & 9

INSTRUCTIONAL LESSON PLAN FORMAT
WORKPLACE MATHEMATICS STRAND

DACUM Task Reference 7.0 Prepare production charts
7.2 Collect data (count and measure)

Learning Objectives Addressed	Learning Activities	Learning Materials
Work context: Given times for last part produced and first acceptable part **Task to perform:** Calculate transition times by subtracting whole numbers with 100% accuracy **Performance outcomes:**	Calculating transition time from data Brainstorming additional IFG subtraction scenarios (Informal oral and written communication) Computing by hand and with calculator	1. Transition time self check from Charting Easy Book (pg. 37) changed to reflec no fractions of an hour 2. Machinist scenarios (8 & 9 3. Subtraction problems

Skills highlighted - Subtracting whole numbers

Identifying the purpose - Read pg. 36 of Charting Easy. Discuss importance of subtracting accurately in collecting data for charting.

Selecting an approach - Work through Machinist scenarios and brainstorm additional IFG situations using subtraction as a skill.

Gathering needed data - Work through problems on pg. 37 (transition time). Learner provides 5-10 new work-related subtraction problems.

Calculating - Perform work-related subtraction problems using pencil and paper. Perform additional skill practices (Machinist 8 & 9).

Checking the solution - Verify solutions to work-related problems. Learner verifies answers to practice problems using calculator.

Learner Follow-up	Instructor Follow-up: This lesson	Instructor Follow-up: Next lesson
Use Job-Related Basic Math computer program for additional practice.	Provide additional explanation of subtraction skills. Ensure capability of 100% accuracy	

TRANSITION TIME
SELF-CHECK

Instructions:

Read the example below. Complete the transition time data worksheet. Plot the data on the transition time chart. Apply all chart rules to complete the chart.

Example

A jobsetter was charting transition time on a five (5) press metal fabrication line. The dies were changed approximately three times each week. The jobsetter collected the following data:

Data:

Date	Part #	Time: last part before change over	Time: first acceptable part achieved
2-17	263452	12.3 pm	3.4 pm
2-19	176432	8.1 am	10.8 am
2-20	342176	7.1 am	10.7 am
2-23	263452	1.0 pm	3.5 pm
2-25	176432	7.2 am	9.7 am
2-27	342176	7.1 am	9.8 am

Transition Time

The purpose of transition time is to monitor the time it takes to perform a changeover. Read the definition below:

Transition time (TT) is the total time machinery is idle during a changeover.

Transition time is measured by subtracting the time the last part was produced before a changeover from the time the first acceptable part is achieved after a changeover.

```
      time last part
    - time first acceptable part
   ----------------------------------
    =         TT
```

```
 10:00am--(time last part part produced)
-10:10am--(first acceptable part)
   10 minutes transition time
```

Some of the benefits you may achieve by monitoring transition time are:

- improving changeover procedures
- eliminating waste
- increasing up time
- supporting continuous-improvement
- providing feedback

The transition time worksheet and chart are shown in figures 8 and 9

191

Machinist
8

Laura likes to know when her machine will finish part-making jobs. Today, she began a job that should take 22 hours. Two days later, Laura had worked 18 hours on that job. She shut the machine off for her lunch. How many hours will the job take after Laura's lunch? To find the remaining time, solve the problem.

$$\begin{array}{r} 22 \\ -\ 18 \\ \hline \end{array}$$

Machinists and other persons working in factories need to perform simple subtraction. They subtract to find hours needed to complete a job. They might subtract numbers of parts, numbers of workers, or numbers of machines.

Perform subtraction of whole numbers, given instructions such as: 8 minus 5 is __? If you had 8 and gave away 5, you would have __. Subtract 5 from 8. 8 - 5 = __? Find the difference of 8 and 5.

Peter's boss has been complaining about "down time." Down time is the number of hours that a machine is not running. Peter says, "I haven't had much down time lately. Last month, I ran the machine 145 hours. I worked a total of 160 hours."

How many hours of down time did Peter's machine have? Find the difference between his total work hours and the hours the machine ran.

160 - 145 =

Machinists often find themselves solving subtraction problems with numbers in tens, hundreds, or thousands. They subtract other things besides hours. They subtract the number of completed parts and the total parts needed. They also subtract the amount of metal needed and the amount of metal on hand.

Find the difference of two 1-5 digit numbers, including cases where borrowing is required.

PRACTICE

Perform subtraction of whole numbers, given instructions such as: 8 minus 5 is __? If you had 8 and gave away 5, you would have __. Subtract 5 from 8. 8 - 5 = __? Find the difference of 8 and 5. (8)

Directions: Complete the following problems.

1. 9 - 6 =

Answer ______________

2. 6 - 5 =

Answer ______________

3. 6 - 3 =

Answer ______________

4. 8 minus 3 =

Answer ______________

5\.

$$\begin{array}{r} 3 \\ \underline{-\ 1} \end{array}$$

Answer ______________

6. 5 - 5 =

Answer ______________

7\.

$$\begin{array}{r} 10 \\ \underline{-\ 1} \end{array}$$

Answer ______________

8. 6 minus 1 is

Answer ______________

9. Subtract 3 from 6.

Answer ______________

10. Subtract 7 from 9.

Answer ______________

11\.

$$\begin{array}{r} 10 \\ \underline{-\ 9} \end{array}$$

Answer ______________

12. 6 minus 5 is

Answer ______________

13. 7 minus 3 is

Answer ______________

14. If you had 10 and gave away 4, you would have

Answer ______________

15. If you had 5 and gave away 2, you would have

Answer ______________

16. Find the difference of 7 and 5.

Answer ______________

17. Find the difference of 3 and 1.

Answer ______________

18. Find the difference of 6 and 3.

Answer ______________

19. Find the difference of 4 and 1.

Answer ______________

20. Find the difference of 5 and 2.

Answer ______________

21.

$$\begin{array}{r}10\\ \underline{-\ 5}\end{array}$$

Answer ______________

22.

$$\begin{array}{r}10\\ \underline{-\ 4}\end{array}$$

Answer ______________

23. Find the difference of 8 and 2.

Answer ______________

24. Subtract 2 from 7.

Answer ______________

25. Find the difference of 7 and 3.

Answer ______________

26. 4 minus 3 is

Answer ______________

27. If you had 7 and gave away 6, you would have

Answer ______________

28. 11 - 11 =

Answer ______________

PRACTICE

Find the difference of two 1-5 digit numbers, including cases where borrowing is required. (9)

Directions: Complete the following problems.

1. $\begin{array}{r} 42 \\ -\ 13 \\ \hline \end{array}$

Answer ______________

2. $\begin{array}{r} 30 \\ -\ 16 \\ \hline \end{array}$

Answer ______________

3. $\begin{array}{r} 42 \\ -\ 23 \\ \hline \end{array}$

Answer ______________

4. $\begin{array}{r} 69 \\ -\ 39 \\ \hline \end{array}$

Answer ______________

5. $\begin{array}{r} 40 \\ -\ 4 \\ \hline \end{array}$

Answer ______________

6. $\begin{array}{r} 67 \\ -\ 56 \\ \hline \end{array}$

Answer ______________

7. $\begin{array}{r} 21 \\ -\ 8 \\ \hline \end{array}$

Answer ______________

8. $\begin{array}{r} 58 \\ -\ 1 \\ \hline \end{array}$

Answer ______________

9. $\begin{array}{r} 95 \\ -\ 85 \\ \hline \end{array}$

Answer ______________

10. $\begin{array}{r} 447 \\ -\ 86 \\ \hline \end{array}$

Answer ______________

11. $\begin{array}{r} 9560 \\ -\ 2 \\ \hline \end{array}$

Answer ______________

12. $\begin{array}{r} 2986 \\ -\ 751 \\ \hline \end{array}$

Answer ______________

13. $\begin{array}{r} 7592 \\ -\ 9 \\ \hline \end{array}$

Answer ______________

14. $\begin{array}{r} 8322 \\ -\ 909 \\ \hline \end{array}$

Answer ______________

15.

$$\begin{array}{r} 4304 \\ \underline{-\ \ 739} \end{array}$$

Answer ______________

16.

$$\begin{array}{r} 746 \\ \underline{-\ \ \ 7} \end{array}$$

Answer ______________

17.

$$\begin{array}{r} 613 \\ \underline{-\ 203} \end{array}$$

Answer ______________

18.

$$\begin{array}{r} 158 \\ \underline{-\ \ 8} \end{array}$$

Answer ______________

19.

$$\begin{array}{r} 6387 \\ \underline{-\ 3633} \end{array}$$

Answer ______________

20.

$$\begin{array}{r} 7903 \\ \underline{-\ 3566} \end{array}$$

Answer ______________

21.

$$\begin{array}{r} 45218 \\ \underline{-\ \ 625} \end{array}$$

Answer ______________

22.

$$\begin{array}{r} 8437 \\ \underline{-\ 1357} \end{array}$$

Answer ______________

23.

$$\begin{array}{r} 45519 \\ \underline{-\ \ \ 87} \end{array}$$

Answer ______________

24.

$$\begin{array}{r} 3442 \\ \underline{-\ 2855} \end{array}$$

Answer ______________

25.

$$\begin{array}{r} 88653 \\ \underline{-\ \ \ 19} \end{array}$$

Answer ______________

26.

$$\begin{array}{r} 9447 \\ \underline{-\ 1345} \end{array}$$

Answer ______________

27.

$$\begin{array}{r} 95287 \\ \underline{-\ \ \ 27} \end{array}$$

Answer ______________

MATH

INSTRUCTIONAL LESSON PLAN FORMAT
WORKPLACE MATHEMATICS STRAND

DACUM Task Reference 3.4 Implement SPC Procedures

Learning Objectives Addressed	Learning Activities	Learning Materials
Work context: Given die set ups producing parts **Task to perform:** Calculate and chart First Time Quality (FTQ) **Performance outcomes:** so as to monitor the quality of tooling and die set up	Calculating FTQ from data; plotting data on chart; interpreting chart	Charting Easybook First Time Quality Workshe

Skills highlighted - Dividing, Calculating percentages

Identifying the purpose - Read p. 34 of the Charting Easybook. Discuss why this purpose is of importance. (#s 1 and 2 on Worksheet)

Selecting an approach - Learner should explain why the FTQ formula on p. 34 makes sense. Would another approach be as satisfactory? (#3 Worksheet)

Gathering needed data - Learner should identify the source of the numbers. "dies that produce good parts" and "total dies set", then access real data from those sources.

Calculating - 1. Practice division of one and two digit numbers. 2. Practice conversion of decimals to percents by multiplying the decimal by 100. Complete the worksheet data and chart.

Checking the solution - Discuss what numbers would be reasonable solutions, what patterns would be expected.

Interpreting information - Complete #s 4-8 on the Worksheet.

Learner Follow-up	Instructor Follow-up: This lesson	Instructor Follow-up: Next lesson
Plot FTQ for your line for a month and plot the information on a Quality Improvement Process chart. (#9 Worksheet)	If additional calculation practice is needed, assign from Job-Related Basic Math	

FIRST TIME QUALITY

Read the first page of the attached material from the Charting Easybook. Then answer the following questions.

1. What is First Time Quality?

2. Why is it important to keep track of First Time Quality?

3. Study the following examples for calculating First Time Quality.

	Dies Set Producing Good Parts	Total Dies Set	Percent
8/10/90	3	6	50%
8/13/90	7	8	88%

To find the percent (First Time Quality), divide:

$$\frac{\text{Dies Set Producing Good Parts}}{\text{Total Dies Set}}$$

8/10/90 $\frac{3}{6}$

$$\begin{array}{r} .50 \\ 6\overline{)3.00} \\ \underline{-3\ 0} \\ 00 \\ \underline{-00} \\ 0 \end{array}$$

.50 x 100 = 50%

10/13/90 $\frac{7}{8}$

$$\begin{array}{r} .875 \\ 8\overline{)7.000} \\ \underline{-6\ 4} \\ 60 \\ \underline{-56} \\ 40 \\ \underline{-40} \\ 0 \end{array}$$

.875 = .88 x 100 = 88%

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Study the second page of the attached material. Complete the chart. Then plot the data on the chart on the third page.

After completing the above steps, answer the following questions.

4. How many times was the First Time Quality goal of 100% met?

5. When was this goal met?

6. What was the percent of First Time Quality on the following dates?

   6/13

   8/1

   9/12

7. What is the usual First Time Quality for your line? (If you are not involved with changing dies, find out this information from someone who is.)

8. Do you think the goal of 100% for First Time Quality is realistic? Why or why not?

9. Keep track of the First Time Quality for your line for a month. Plot this information on a chart.

First Time Quality

The purpose of charting first time quality is to monitor the quality of tooling, and the ability to duplicate a die set up reliably.

First time quality (FTQ) is the ratio of dies set that produce a good part to the total number of dies set.

Simply, does the die produce a part that meets all quality requirements.
Note: Goal is 100%.

$$FTQ = \frac{\text{dies that produce good parts}}{\text{total dies set}} \times 100$$

Some of the benefits you may achieve by charting first time quality are:

- improving changeover procedures
- improving tool and die maintenance

BEST COPY AVAILABLE

FIRST TIME QUALITY
SELF-CHECK

Instructions:

Read the example below. Complete the first time quality data work sheet. Plot the data on the first time quality chart. Apply all chart rules to complete the chart.

Example

A fine blank operator gathered baseline data on how many dies were set that produced first time quality. The operator then began charting first time quality on a weekly basis. The following data was collected.

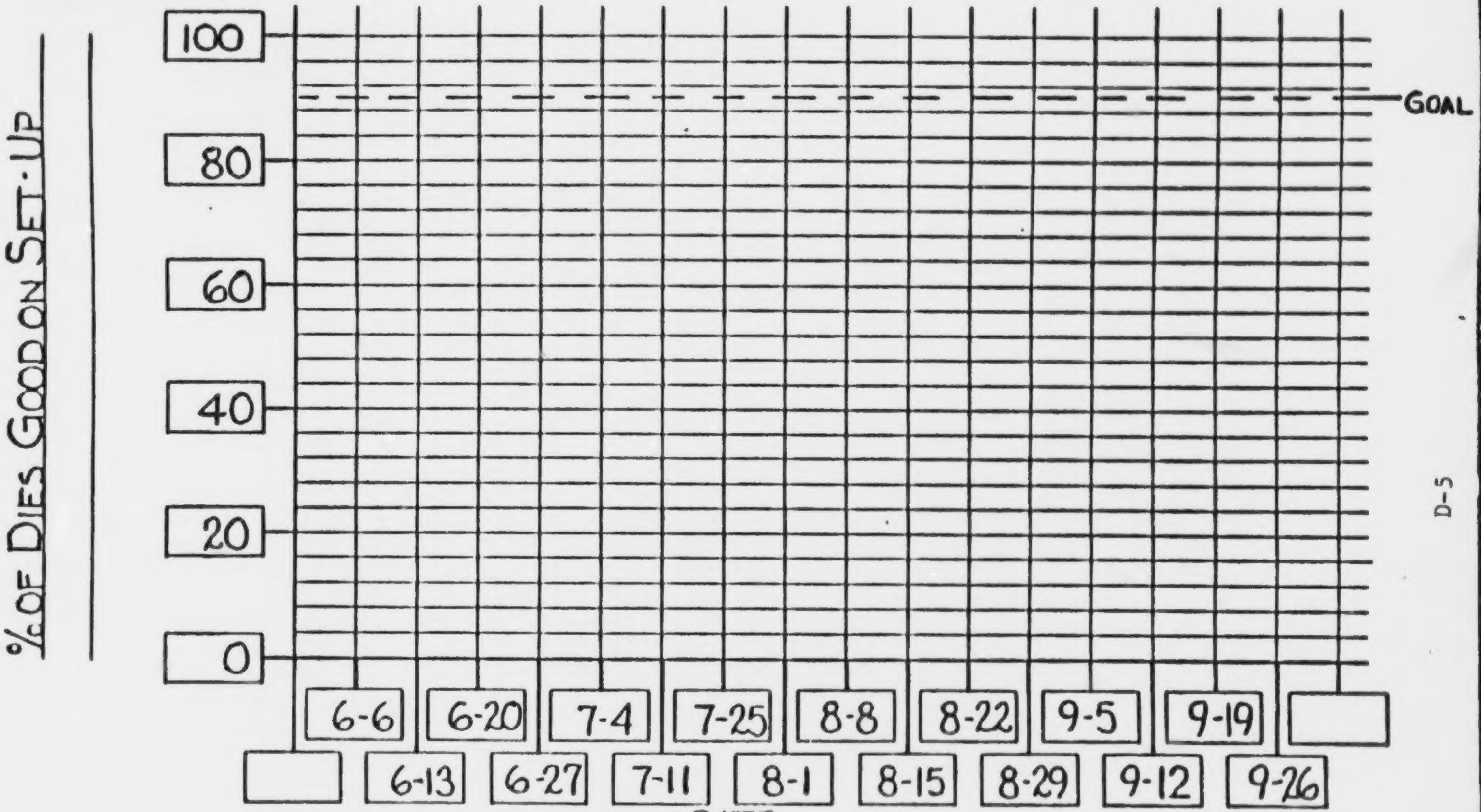
	Good		Total Set
6-6	6	-	9
6-13	7	-	10
6-20	8	-	10
6-27	7	-	9
7-4	8	-	10
7-11	7	-	11
7-25	7	-	10
8-1	7	-	11
8-8	8	-	12
8-15	8	-	11
8-22	6	-	9
8-29	6	-	9
9-5	8	-	8
9-12	8	-	11
9-19	6	-	9
9-26	8	-	12

IFG INLAND FISHER GUIDE

UAW

COLUMBUS PLANT QUALITY IMPROVEMENT PROCESS

MEASURE OF PERFORMANCE



APPLICATION: B.U.3 - BLANK AREA - FIRST TIME QUALITY
6-6-89 TO 9-26-89

CHARTED BY:

APPENDIX E

SAMPLE COMMUNICATIONS LESSONS

1. Instructional Lesson Plan on Customer Relations
2. Instructional Lesson Plan on Packing
3. Sample Writing Topics
4. Literacy Task Analysis with Attached Curriculum Materials

INSTRUCTIONAL LESSON PLAN FORMAT
WORKPLACE COMMUNICATIONS STRAND

ACUM Task Reference: 6.1, 6.4, 11.0, 11.1, 11.2, 11.3, 11.7, 13.5, 13.8 - Reading, Relating to custome and others

Learning Objectives Addressed	Learning Activities	Learning Materials
Work Context - APO's & other jobs **Work Task** - work with outside customers & other employees **Performance Outcomes** - in any work situation, use effective customer relation skills for positive production results	**Reading** - need excerpt from APO manual **Writing** - write answers to questions, including own experiences **Oral Language** - discussion	1. APO manual excerpt & questions 2. Pen or pencil & paper 3. Dictionary

Skills/Processes highlighted - 1. Improve reading skills for job-related materials.
2. Improve customer relations skills (both in-house & outside the plant).
3. Clearly describe own experiences verbally & in writing
4. Brainstorm

Before reading -
1. Discuss brainstorming methods
2. Discuss ideas of "customers"
3. Answer question #1 -
4. Discuss finding clues to word meanings from context

While reading - Read selection from APO manual

After reading -
1. Answer questions #2-9
2. Discuss ideas of "customers"
3. Discuss learner's examples of good and bad customer service
4. Discuss words learner had questions on and how to find meaning

---

Learner Follow-up

1. Note situations of good & bad customer service in the future at IFG.

Instructor Follow-up

This lesson

1. Discuss finding word meanings in context
2. Discuss ideas of "customers" & good & bad customer service examples

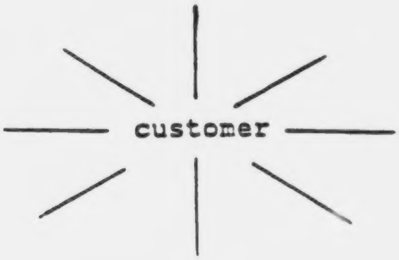
Next lesson

1. Discuss other customer service examples

APO MANUAL - THE CUSTOMER

Answer Question #1 before reading the attached materials.

1. Fill in below as many items as you can think of that relate to a customer.



Read the attached materials from the APO Training Manual. Then answer the following questions:

2. Who is a customer at the IFG Plant?

3. Describe any situation where you were a customer and were given good service.

4. Describe any situation where you were a customer and were given bad service.

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5. What could the company or person have done to serve you better (in the situation from Question #4)?

6. Write down any words from this material that you were not familiar with.

7. Try to find out what these words (from #6) mean. Review the material to find the meanings of these words.

8. What clues are given you in the surrounding sentences to help figure out these definitions?

9. Discuss these words with your instructor.

CUSTOMERS

CUSTOMERS are the most important people in our business – in person – by telephone or by mail. They are our highest priority.

CUSTOMERS are not dependent on us – we are dependent on them.

CUSTOMERS are not an interruption of our work – they are the purpose of it.

We are not doing them a favor by serving them – they are doing us a favor by giving us an opportunity to do so.

CUSTOMERS are not outsiders in our business – they are part of it.

CUSTOMERS are not cold statistics – they are flesh and blood human beings with feelings and emotions of their own.

CUSTOMERS are not people to argue with or to match wits with. Nobody ever won an argument with a customer.

CUSTOMERS have the unequivacol right to expect the highest quality and best value product.

CUSTOMERS are people who bring us their wants. It is our job to handle their wants profitably – both to them and to ourselves.

CUSTOMERS are ultimately the ones for whom all decisions must be made.

SUPPLIER/CUSTOMER RELATIONS

SUPPLIER/CUSTOMER RELATIONS is establishing long-term relationships with those individuals who supply materials and services to you-from inside or outside the plant-and those individuals who receive your parts and services.

What exactly is a supplier and a customer? More specifically:

SUPPLIER is a source for raw materials, unfinished parts, or services. Suppliers may be the person next to you, a different area within the plant, or an independent supplier.

CUSTOMER is the receiver of your parts or services. Customers may be within the plant or an assembly plant in another location.

We have frequently heard these phrases around the plant.

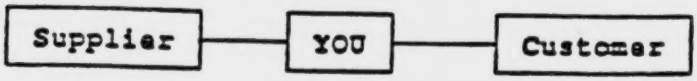
QUALITY AT THE SOURCE
and
TOTAL CUSTOMER SATISFACTION

But what exactly is a supplier and a customer? More specifically.

In a sense, your SWG is in the middle between suppliers and customers. The SWG processes the raw materials from suppliers into usefull products for customers.

In a perfect world. suppliers would always meet our expectations and we would always meet the expectations of our customers. But that isn't always the case. Breakdowns in communication naturally occur. That is the reason for having close Supplier-Customer contacts.

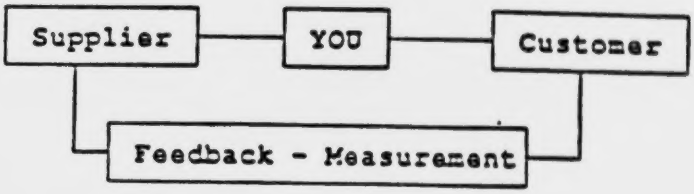
You are in the middle between suppliers and customers. You process the raw material from suppliers into useful products for customers.



Long-term relationships are established usually with a single supplier who is close in proximity to the plant. Suppliers are encouraged to adopt SWG features. Communication links are established between SWG members and the suppliers.

SWG members also establish relationships with their customers. Plant visits to customers or, better yet, phone calls could be scheduled on a regular basis.

The purpose of supplier/customer relations is to ensure that customer satisfaction is achieved. We do this by measuring the services we receive from our suppliers, and those we provide to our customers. These measures provide feedback to the SWGs.



INSTRUCTIONAL LESSON PLAN FORMAT
WORKPLACE COMMUNICATIONS STRAND

DACUM Task Reference: 14.0, 14.1

Learning Objectives Addressed	Learning Activities	Learning Materials
Work Context - Given x number of parts and packing material **Work Task -** pack x number of parts **Performance Outcomes -** parts packed will not be damaged and will be packed in proper alignment at plant.	**Reading -** Read routing sheet **Writing -** See follow-up **Oral Language -** Discuss	Routing sheet Pencil Paper

Skills highlighted - locating information on a form (LTA 1.1, 3.1)
literal comprehension - following detailed, sequential directions to complete a task (LTA 1.2, 3.2)

Prereading - Discuss: What are routing sheets? Why are they used? Where do they originate? Who writes them up? Where in the plant are they routed to? etc.

Reading - Read over the routing sheet, numbering the stops or places the parts go to.

Postreading - Finding the place which gives packer directions, number the steps the packer is directed to take.

Learner Follow-up

1. Re-write the packer directions on the routing sheet to be clearer - use better sentences, easier whole words (not abbreviations). Pretend you need to tell me how to pack the parts.
2. Optional - Pretend you are a part and write a story telling where you would go and what would happen to you at IFG.

Instructor Follow-up

This lesson

Next lesson

[illegible] Division
[illegible] Corporation
[illegible] 3-1-71

ROUTING SHEET

COLUMBUS PLANT

PART NAME: Mldg W/S Flr Drip R&L
PART OF ASSEMBLY:
FINISH: M10 B30
PART NUMBER: 2003 7314-5
SHEET: 5 OF 5
CLASS NO.: 29
ISSUE NUMBER: 9
DATE ISSUED: 6-21-83

TYPE OF EQUIPMENT	TOOL NUMBER	OPER. NUMBER	OPERATION DESCRIPTION	OPER IN DEPT	ACT./AVE. STANDARD	EXPECTED PRODUCTION	H. OR L.	RATE CODE	STD HRS/100 PCS	CHANGE DATE
Rack		140	Rack & Unrack	065					Chg. 901	
Anodize Machine		150	Anodize machine attendant, remove rack from rack monorail and place on anodize machine.	065					Chg. 901	
Anodize Machine		160	Operator, anodize machine.	065					Chg. 901	
Anodize Machine		170	Remove rack from anodize machine and hang on monorail.	065					Chg. 901	
			mldgs. is short for moldings blds is short for bundles							
Pack Bench		190	Return previous module board and transfers to storage rack. Identify part to be packed. Get correct module board and place at pack stand. Place a #50 pad in bottom of container. Line inside of the basket with two #28 liners. Make out and apply transfer and I.D. tape. Get (5) mldgs. @ time from stock truck VISUAL INSPECT for dings, scratches, mutilations, anodize and bent flanges on back of mldgs. and nest and wrap (5) mldgs. in (2) sheets of tissue paper separating each part. PACK (50) blds/layer, reverse direction of every (5) blds. with reveal surface up and (4) high = 1000 pcs/container. Separate each layer with a #137 pad and place a #50 pad over top of finished parts. Remove loose shipping labels when necessary.	066	387			3404	2584 Pay Transfer	6-3-82
			Transfer to Shipping Dept.							

E-2

STYLE USAGE 1980 See sheet #1

DEPT. ____ TOTAL
DEPT. ____ TOTAL

Part No. 2036 0304-5
Dept. No. 7
Specification Date 8 13 87
Effective Date

Packing Material
60 910 Carton
68 330 Special Tape
53 903 Pad
[illegible]
53 188 Pad

Pieces Per Carton	Pieces Pallet or Basket
576	

Description:
Nest 36 mldgs. and tape at center with special tape. Pack 8 layers with [illegible] curved ends up and 8 layers with curved ends down. Separate each layer with a #188 pad. Bend two #903 pads and place between the 8 th and 9th layers.

Approved:

2 6

Part No. 2036 0304-5
Dept. No. 7
Specification Date 8 13 87
Effective Date

Packing Material
60 910 Carton
68 330 Special Tape
53 903 Pad
[illegible]
53 188 Pad

Pieces Per Carton	Pieces Pallet or Basket
576	

Description:
Nest 36 mldgs. and tape at center with special tape. Pack 8 layers with [illegible] curved ends up and 8 layers with curved ends down. Separate each layer with a #188 pad. Bend two #903 pads and place between the 8 th and 9th layers.

Approved:

E-2

2 7

WORKPLACE LITERACY
SAMPLE WRITING TOPICS

1. Think about the skills and knowledge needed to be an auto worker today. What skills do you think will be needed by auto workers
   ... 5 years from now?
   ... 10 years from now?
   ... 15-20 years from now?

2. Think about the progress in the auto manufacturing industry since you began working for GM. What advances, progress, or changes do you see in the auto manufacturing industry by the year 2000?

3. If you could have any job at GM, what would it be and why?

4. Describe typical problems that occur on your job and how you solve them.

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Literacy Task Analysis

Position: Rework Operator
Job Task: Maintain Count and Cost of Scrap

Job Steps	Literacy Tasks
1. Count scrap 1.1 Go to bins of scrap parts and door locks. 1.2 Manually count number of scrap door locks and parts for which cost per unit is known. 1.3 Manually count number of scrap door locks and parts that are measured by weight.	1. Perform addition of whole numbers.
2. Calculate cost of scrap 2.1 Find cost per unit for each part on price per unit list. 2.2 Multiply number found in 1.2 above by cost per unit (for each door lock or part). (Do manually or with a calculator.) 2.3 Multiply number found in 1.3 above by cost per pound of scrap metal. 2.4 Add two costs from 2.2 and 2.3 above for total cost of scrap. 2.5 Maintain count twice daily: at the mid-point in the shift and at the end of the shift.	1. On a chart, locate information needed to complete a task. 2. Perform multiplication of whole numbers, decimals, and fractions. 3. Perform addition of whole numbers.

Job Tasks

2.6 Add the total costs of scrap from the mid-point and from the end of the shift. This is the total cost of scrap for the shift.

2.7 Record the total cost of scrap per day for that shift daily on the Cost of Scrap Chart for that line.

Math Review

Multiplication On The Job:

1. Multiply in the following situations. (Examples have been done for you).

Example:

30	Operators
x 8	Hours each day for each operator
240	Total hours per day worked by all operators
240	Total hours per day
x 5	Days in 1 week
1200	Hours worked in 1 week by all operators
1200	Hours worked in 1 week by all operators
x 12	Weeks in a 3 month period
2400	
1200	
14,400	Total hours worked by all 30 operators in a 3 month period

a.

45	door frames
x 15	inches of steel needed per door frame

b.

16	punch presses
x 9	hours needed to change the die

c.

249	scrap door locks
x 3	shifts per day

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d. 1250 door frames
x 3 welding steps for each frame

e. 176 employees sick 1 day in a month
x 8 hours per sick day

f. 237 scrap door locks
x 22 days per month

g. 450 parts per box
x 23 boxes

h. 167 employees per Business Unit
x 23 units

i. 2535 door frames needed
x 58 parts needed for each door frame

j. 375 lubrications
x 24 gallons of lubricant needed per job

k. 2385 parts per robots
x 74 robots

l. 1435 union employees
x 350 union dues

2. We are all familiar with handling money (dollars and cents). We often see amounts like $25.40 and $19.95.

Dollars and cents, like $21.50, are one use of decimals. The amount of cents (to the right of the decimal) shows only a fraction of a whole dollar:

$21.50 (50)

decimal

.75 (75)

decimal

Any numbers to the left of the decimal represent dollars (whole numbers):

$21.50

dollars

$.75

no dollar

Multiplying or dividing with decimals is like any multiplication or division exercise except you always make sure that the decimal is placed correctly in your answer, as in the following examples.

Examples:

$18.50	Pay per hour
x 8	Hours worked per day
$148.00	Total pay for 8 hours

$1.25	Cost per Units
x 355	Units Made
625	
625	
375	
$443.75	Total Cost of 355 Units Made

3. Multiply in the following situations:

a.

$1.60	Cost per pound of scrap metal
x 382	Pounds of scrap metal

b.

124	bad parts
x $.85	cost per part

c.

415	Units Made
x $2.75	Cost per Unit

d.

$20.75	Cost per hour
x 356	Hours in employee absences

e.

$115.50	Dues per month
x 12	months per year

f.

$350.75	Social Security tax per pay
x 26	pay periods

4. Any number with a decimal is just like working with a decimal in dollars and cents as shown below.

Example: 350 parts
x 2.75 millimeters per part
1750
2450
700
962.50 length for all 350 parts

Multiply in the following situations:

a. 475 machines
x 3.25 gallons of oil needed per machine

b. 56 boxes
x 9.5 pounds per box

c. 605 Units
x 12.9 measurement per Unit

d. 1242 Parts
x 3.16 gallons needed per part

e. .001 variance
x 38 inches

APPENDIX F

6-WEEK COURSE

1. Proposal
2. Program Checklist
3. Classroom Policies
4. Program Survey
5. Skills Checklist - Communications (1-6 weeks)
6. Skills Checklist - Math (1-6 weeks)

April 12, 1991

TO: Midge Burgess, Debbie Garling,
Dave Griffith, Pat Scott

FROM: Lifelong Learning Center (L.L.C.) &
Joint Training Office

RE: Proposal for Refresher Course in L.L.C.

Who: JOBS Bank and eventually all employes

Where: Classroom (to be announced)

How Many: 20 maximum

Duration: 6 weeks (40 hours per week)
Certificate upon completion

Topics:
- Math
- Reading/Writing
- Study Skills
- Learning Styles
- Teamwork
- Assertive Communication
- Effective Listening

Group Learning Proposal
for JOBS Bank
Consolidated Curriculum
(Six - Week Program)

Proposed by:
Janet H. Collins
Patricia M. Connor
Margaret L. Girkins

Instructors, I.F.G.
Lifelong Learning Center
April 11, 1991

Program Goals

1. To improve math, reading, writing, reasoning, communications, and teamwork skills to enhance workplace and personal productivity.
2. To develop an appreciation of the values of lifelong learning.

Program Learning Outcomes

1. To understand and apply basics of mathematics in daily activities.
2. To discover and use various skills to suit the learner's needs in understanding and studying reading materials.
3. To write effectively in different situations using a variety of formats.
4. To investigate and use different reasoning skills to assess needs and achieve results in diverse situations.
5. To recognize and apply appropriate listening and speaking skills in communcating with others.
6. To express and utilize different methods of cooperation to initiate team effort and attain goals.

Program Title Options

"S.K.I.L.L.S."
"Sharing Knowledge In Lifelong Learning Success"

"S.K.I.L.L."
"Sharing Knowledge In Lifelong Learning"

"W.E.S.T."
"Workplace Enchancement Skills Training"

6 Week Curriculum

Week 1

Monday
7:00 -10:30 A.M. Introductions: Joint Training
L.L.C. Staff

Program Overview
I.E.P.'s
Goals & Learning Outcomes
Projects
Expectations / Commitments

Tuesday, Wednesday, Thursday

Assessment
Reading Questionnaire Parts 1 & 2
Learning Styles
Begin Math
" reading
" writing
Decide on group projects (group #1: Video on L.L.C. offerings)

Weeks 2 - 4 Typical week of previous page

Week 5 Regular curriculum & may also include:
Visit from college reps
Visit to college campus & library
(C.S.C.C., Franklin University, etc.)
Visit to main library

Week 6 Portfolio Consolidation
Students evaluate program
Present class project to H. Lambert / B. Pennington
Students receive Certificates of Completion
Article in Buckeye Bulletin

- * Emphasize the "team project" idea utilizing skills to complete projects interweaving math, writing, reasoning, and teamwork.
- * Learners will have team ownership in a project

Monday	**Tuesday**	**Wednesday**
7:00 - 9:00 A.M. Group & Individual Work	7:00 - 9:00 A.M. Group & Individual Work	7:00 - 9:00 A.M. Group & Individual Work
9:00 - 11:00 A.M. Math	9:00 - 11:00 A.M. Coping Strategies	9:00 - 11:00 A.M. Math
LUNCH / STUDY		
12:30 - 2:30 P.M. Writing	12:30 - 2:30 P.M. Reading	12:30 - 2:30 P.M. Writing or Math
2:30 - 3:30 P.M. Review/ Wrap Up Group Work	2:30 - 3:30 P.M. Review/ Wrap Up Group Work	2:30 - 3:30 P.M. Review/ Wrap Up Group Work

Thursday	**Friday**
7:00 - 9:00 A.M. Group & Individual Work 9:00 - 11:00 A.M. Study Skills	7:00 - 11:00 A.M. Work on Video for L.L.C.
LUNCH / STUDY	
12:30 - 2:30 P.M. Reading 2:30 - 3:30 P.M. Review/ Wrap Up Group Work	12:30 - 3:30 P.M. Individual or Group Study Tutoring

PROGRAM CHECKLIST

_____ The program curriculum will consist of, but will not be limited to: studying job skills; learning styles; study skills; math, reading, writing and communication in daily life; teamwork; and research skills.

_____ The program will run for six weeks, 40 hours per week from 7:00 a.m. to 3:30 p.m. The beginning date is targeted for September 16, 1991 but may be pushed back depending upon the number of applicants and the time needed for assessment.

_____ Participants must be available for the entire six weeks. No vacations or scheduled leaves of absence will be allowed.

_____ The interview and assessment process will take approximately 2 1/2 - 3 hours and will be done on the participant's own time. There will be no pay for this as there is none for other LLC participants.

_____ Program participants will be selected based on need, ability and availability. Instructors will use their discretion in selecting participants who will best benefit from this program.

_____ Participants in this program will be considered in JOBS Bank and are not eligible for any overtime pay for the six weeks (i.e. car dealership program).

_____ Program participants will not be paid for any time spent in the Lifelong Learning Center beyond the required 40 hours during the six-week program.

_____ If a participant voluntarily leaves the program ("It's just not for me" etc.), they will not be allowed to re-enter.

_____ Non-performing or negatively distracting participants may be asked to leave the program at the discretion of the instructors.

_____ Upon completion, participants will receive a certificate of participation for their achievements.

______________________________ ________________________
participant signature date instructor

a:6wkguide pc 8/15/91

LIFELONG LEARNING CENTER (LLC)
SIX-WEEK PROGRAM

CLASSROOM POLICIES

1. CLASS TIME

7:00 a.m. to 3:30 p.m. as follows:

7:00 a.m. to 7:15 a.m. is your time to prepare for class. Example: get coffee, use restrooms, take care of plant business, or work on assignments

7:15 a.m.: be in classroom ready to work

7:15 a.m. to 10:50 a.m.: classroom instruction, break and work time

10:50 a.m. to 11:30 a.m.: lunch break

11:30 a.m. to 1:00 p.m.: classroom instruction, break and work time

1:00 p.m. to 3:30 p.m.: GED preparation for GED students; small group and individual work for non-GED students.

3:30 p.m.: end of day

2. SUGGESTED SUPPLIES

-Three-ring binder
-Notebook paper
-Journal notebook (spiral or composition book)
-Pens, pencils, markers, highliters (split a pack with a friend)
-12-inch ruler (we have 10 here that can be shared)
-Calculator (we have 10 here that can be shared)

3. ILLNESS/EMERGENCY

If you are ill or have a personal emergency and cannot attend class:

In addition to calling the plant (the usual procedure to report absence), ALSO call the LLC so we will know. Call 275-5081 (or 5084 or 5085). If an employee does not answer the phone, leave a message on the answering machine.

When you return from illness, "red cards" must go to Mike Hanley in Timekeeper's office.

4. TELEPHONE USE

275-5081 is the number to leave as a message phone. However, the LLC is not to become an answering service for employees. Personal phone calls must be kept to a minimum (preferably emergencies only). Messages will be posted on the message board outside the classroom. You are responsible for checking the board.

If you need to call out of the plant, please use the public phones in the plant. If you must call from the LLC, the phone in the Computer Cube is the ONLY phone available for your use. If it is busy, you will need to wait until it is free.

Calls should be made only during breaks or off work time.

5. SMOKING

There is no smoking in the LLC. You may smoke in the lavatories.

6. STUDY TIME

Study time is reserved for work assigned in the LLC.

7. HOUSEKEEPING

Please keep the classroom and your work area clean by throwing away trash and wiping up spills. You may bring beverages into the LLC, but no food.

Lunch must be eaten outside of the LLC.

8. TIME CARDS

Time cards can be relocated to the South Entrance or B.U. 1 after the first week, if needed. Contact employment during the first week if you need to have it moved.

9. ETC.

Please let us know if you have suggestions, requests or complaints about the program. We will try to help you in whatever way we can.

10/31/91 a:policy6

LIFELONG LEARNING CENTER SIX-WEEK BASIC SKILLS PROGRAM SURVEY

Your name is on the list of IFG employees who want to take the Six-Week Basic Skills Program. Fill in the blanks below and answer the questions ***(PLEASE PRINT)***. Just do the best you can to fill it out hen ***bring this paper*** to the Lifelong Learning Center (we are on the second floor down the hall from the auditorium) ***before December 18, 1991***.

You will be notified during the second week of January, 1992, to let you know if you are eligible for the program or not.

1. First Name________________ Last Name________________
   Your home phone number (   )________________
   . Do you plan to take any time off from January-July, 1992? Yes No
   If you are planning to take time off, what are the dates? ________________

2. Your IFG Department/B.U. # ________
   Your clock number ________________
   Your supervisor's name________________
   What shift do you work? ______1st ______2nd ______3rd

3. Did you graduate from high school? Yes No
   If you did graduate, what year was it?__________

4. Did you study for and receive a G.E.D. (General Equivalency Degree)? Yes No
   If you did receive a G.E.D., what year was it? __________

5. If you did not graduate from high school or did not receive a G.E.D., do you wish to study for your G.E.D. now? Yes No

6. Do you have college degree or job certification? Yes No
   If you do, what is it? ________________

7. Have you taken any college courses? Yes No
   If you have, what are they and where did you take them? ________________
   ____

8. **What do you think you are "good at" in learning? (Circle as many as you need to.)**

   Communicating with people Teamwork Math Reading Writing

   Spelling Solving Problems Listening Speaking Job Skills Studying

   Other ________________________________

9. **What do you think you "need" to learn about? (Circle as many as you need to.)**

   Communicating with people Teamwork Math Reading Writing

   Spelling Solving Problems Listening Speaking Job Skills Studying

   Other ________________________________

10. How do you feel about learning, with your co-workers, for eight hours a day for six weeks? Write a short answer on the back of this paper.

pmc 12/8/91 learner survey   LLC phone: 275-5081

Skills Checklist
Communications

Week one: November 4, - November 8, 1991

Learner: ______________________________

______ Pretests
  ______ RQ 1
  ______ RQ 2
  ______ Cloze

______ Brainstorm program benefits

______ Learning Styles Inv. (LSI) - vocabulary
  ______ completing a survey instrument

______ LSI score sheet
  ______ transferring data (numbers) ______ adding a series of numbers
  ______ multiplying 2 numbers

______ LSI Chart (negligible, major learning styles)
  ______ plot data on chart
  ______ create bar chart
  ______ interpret LSI zones using LSI descriptors

______ Wild mind writing (timed, free-expression writing):
"I don't want ...."

______ Myths of writing
  ______ true/false survey
  ______ discussion of how we were taught to write
  ______ discuss meaning of T/F "Myths" 1-22
  ______ what IS the purpose of writing?

______ Read Essayist's essay - Andy Rooney
  ______ read for main ideas
  ______ discuss "what is an essay?"
  ______ intro, body, summary, vocabulary and messages

______ "Writing instructions, directions, from Chapter 2,
Contemporary's The Write Stuff
  ______ relevant information to include
  ______ brainstorming ideas
  ______ sequencing ideas; order of importance
  ______ compose a message containing instructions for someone else to follow

Date Completed   Additional Assignments

SKILLS CHECKLIST
COMMUNICATIONS

Week Two: Nov. 11-15, 1991

Learner______________________________

- ______ Messages, notes - review of prior week
- ______ Vocabulary - review of words from prior week
- ______ The Write Stuff: Shaping Sentences Pgs. 128-132-179-181
  - ______ What is not a sentence
  - ______ 3 points to check for complete sentences
  - ______ Recognizing fragments with sentences (editing)
  - ______ Combining fragments with sentences (editing)
  - ______ 2 points to check for run-on sentences
  - ______ Using the "comma + connector" to combine short sentences
  - ______ Recognize long, difficult-to-read sentences
  - ______ Prepositions list: sentence fragments, many times, begin with preps.
- ______ Wild mind writing
  - ______ "I could really use a ..." or "I know where..."
- ______ "Read to Remember" techniques
  - ______ Use "Baby Boomers" healthcare article with text blocked out
  - ______ Predict content based on title, headings, graphics and other non-text clues
  - ______ Read article in small groups
  - ______ Compare and contrast predictions with actual content (in small groups each group works on a different section)
  - ______ Regroup and report findings
  - ______ What were main idea & purpose of article? How good were our predictions?
- ______ The Write Stuff: Life Skills, chapter 3 announcements, notes & letters
  - ______ Use "Read to Remember" techniques to remember important info
    - ______ Highlight, circle, margin notes - summarize
    - ______ Mnemonic devices (help memory)
  - ______ The 5 W's - recognize in samples & use in your own piece
  - ______ The 6 guides for writing announcements, notes & letters
  - ______ Write a short business request letter
- ______ Spelling overview - Johanna DeStefano

SKILLS CHECKLIST
COMMUNICATIONS

Week Three: Nov. 18 - Nov. 22, 1991

Learner______________________________

______ Announcements, notes, letters; Chapter 3 finished
    ______ Addressing business envelopes

______ Spelling review
    ______ Stressed & unstressed syllables
    ______ Long & short vowel sounds; schwa sound
    ______ Affixes: prefixes & suffixes; Greek & Latin prefix list; suffix list

______ Wild mind writing
    ______ "I'm glad ..." or "if I weren't here ..."

______ Types of short written pieces
    ______ Review of Essayist
    ______ Read article "Animal Rights" - news with bias
    ______ Small group work to analyze pieces, contents, tone, facts, opinions in "Rancher" essay

______ Essays and The Writing Process
    ______ Thesis statement; Intro
    ______ Body paragraphs; main & supporting ideas; what is a paragraph?
    ______ Conclusion; summary
    ______ Brainstorming & writing
    ______ Author's checklist & "Seven Sins of Essays"

______ Autobiographical essay assignments
    ______ Brainstormed ideas
    ______ Develop thesis statement
    ______ Begin organizing & writing ideas
    ______ Peer review & critique of work
    ______ Format guidelines for final copy

______ Spelling Workshop - Johanna DeStefano

Date Completed   Assignments

SKILLS CHECKLIST
COMMUNICATIONS

Week Four: Nov. 25 - Nov. 27, 1991
(Thanksgiving; Short Week)

Learner________________________________

______ Punctuation: The comma
  - ______ 9 basic uses
  - ______ apply in workplace sentences
  - ______ use rules in editing your own work

______ Prediction in Reading; article:"Healthy choices/skepticism/decisions"
  - ______ pre-reading: discuss title & cartoon; meanings of words; what do you know already?
  - ______ reading: compare current knowledge and prediction to content
  - ______ post-reading: apply principles of making choices on the issue of GM buyout (in small group); Goop: goals, options, outcomes and probability

______ Autobiographical essay; continued work
  - ______ first draft complete; review with instructor
  - ______ edit; look critically at your own work
  - ______ develop title

Date Completed   Assignments

____

____

____

____

____

____

____

____

____

____

____

211

SKILLS CHECKLIST
COMMUNICATIONS

Week Five: December 2 - December 6, 1991

Learner ______________________________

______ Grammar / Punctuation
    ______ received copy of Write Right book to keep
    ______ capitalization review and examples
    ______ contractions: their meanings and forms

______ Autobiographical Essay
    ______ reviewed writing process
    ______ reviewed author's composition checklist
    ______ edit your work
    ______ complete & turn in final copy

______ Research and reference work
    ______ CSCC visit; ERC tour
    ______ review of Library resources
    ______ review of Dewey Decimal System / Cataloging
    ______ ERC scavenger hunt: Author, Title, Subject searches; use Readers's Guide; examine reference section

______ Writing minutes and memos in business setting
    ______ discuss uses of memos
    ______ parts of memos & write a memo
    ______ taking notes at meetings
    ______ group activity: listen to classmates debate and identify main ideas
    ______ get feedback on notes taken

______ Spelling
    ______ list of troublesome homophones
    ______ "There" sheet, including There's There're, They're, Their, Theirs, they
    ______ use forms of There in workplace sentences

Skills Checklist
Communications

Week Six: Dec. 9 - Dec. 13, 1991

Learner ______________________________

______ Reading charts & graphs
  ______ chart parts and purposes (charting easybook)
  ______ determining messages of chart
  ______ what does chart say/not say?
  ______ small groups: discuss interpretation of *Autoweek* chart: POTENTIAL HEAD INJURY

______ Wild mind writing: "I am sure..."

______ Autobiography: return to learners; discuss feedback

______ Memos & Minutes (cont'd)
  ______ reviewed 5 w's of memos
  ______ filing grievances and safety reports
    ______ NLRB, EEOC, OSHA
    ______ purposes of agencies

______ Writing assigned: "Words of Wisdom" for Literary Yearbook
  ______ format
  ______ quotes

______ Self-esteem/positive attitude building
  ______ "Pat on the back" exercise: compliments and positive attitudes written about each other; read comments aloud

______ Getting A Job: resumes, letters, informational interviews, job applications (reference materials and review for learners - no assignment)

______ Post-test
  ______ cloze (MG)

Skills Checklist
Communications

Week Seven: Dec. 16 - Dec. 20, 1991

Learner ______________________________

- ______ Post tests
  - ______ RQ1
  - ______ RQ2
  - ______ Read ABLE
    (Rating scale authorizaton was done 12-3-91)

- ______ Writing collected
  - ______ "Words of Wisdom" for class yearbook final copy

- ______ Reading; article "Expressing Your Feelings..."
  - ______ small group work
  - ______ main ideas
  - ______ analyze & summarize

- ______ Group Communication
  - ______ teamwork: Winter survival exercise - decision making;
  - ______ discussion: "Leadership and Followership"
  - ______ debrief: discuss roles of group leaders & followers
  - ______ handout: "Paradoxical Commandments of Leadership"

- ______ Wild Mind Writing

- ______ Learner Evaluation of LLC

NAME ________________________________

Math Checklist
6 Week Class
Week One

WHOLE NUMBERS
_______ Timed multiplication quiz
_______ Whole numbers and problem solving handout
_______ Reading and writing
_______ Rounding

_______ Adding
_______ Subtracting -- Review of borrowing
_______ Multiplying
_______ Dividing

PROPERTIES OF WHOLE NUMBERS
_______ Commutative property of addition and multiplication
_______ Associative property of addition and multiplication
_______ Addition and (multiplication property of zero
_______ Multiplication property of one
_______ Distributive principle

WORD PROBLEMS
_______ Key words
_______ Estimation
_______ Practice word problems with whole numbers

_______ Quiz (whole numbers)

Date Completed	**Additional Assignments**

NAME ______________________________

Math Checklist
6 Week Class
Week Two

PREPARATION FOR WORKING WITH FRACTIONS

______ Factors, primes
______ Divisibility tests
______ Factorization
______ Prime factorization
______ Lest common multiple

FRACTIONS

______ Meaning of fractions
______ Classifying: proper, improper, mixed numbers
______ Equivalent fractions
______ Raising to higher terms
______ Reducing
______ Reducing with prime factorization
______ Changing improper fraction to mixed numbers
______ Changing mixed numbers to improper fractions
______ Comparing fractions

______ Quiz (fractions)

Date Completed	Additional Assignments

NAME ________________________

Math Checklist
6 Week Class
Week Three

FRACTIONS CONT'D

______ Finding lowest common denominator (LCD/LCM)
______ Adding and reducing
______ Subtracting and reducing
______ Borrowing when subtracting
______ Word problems in adding and subtracting

______ Quiz (fractions)

Date Completed	Additional Assignments

NAME ______________________________

Math Checklist
6 Week Class
Week Four

FRACTIONS CONT'D

______ Multiplying proper fractions
______ Cancellation in multiplication
______ Multiplying mixed numbers, whole numbers, and proper fractions
______ Dividing fractions -- rule (reciprocal)
______ Dividing with mixed numbers, whole numbers and proper fractions
______ Word problems in multiplying and dividing

REVIEW OF FRACTIONS

______ Computation practice
______ Word problems with all four operations

______ Changing fractions to decimals

______ Quiz (fractions)

Date Completed	**Additional Assignments**

NAME ______________________________

Math Checklist
6 Week Class
Week Five

DECIMALS

_______ Intro to decimals
_______ Reading
_______ Writing
_______ Rounding
_______ Comparing
_______ Adding -- key words
_______ Subtracting -- key words

_______ Word problems in adding and subtracting

_______ Multiplying
_______ Dividing -- using 5-step method
_______ Converting decimals to fractions and reducing
_______ Review of converting fractions to decimals

_______ Quiz (decimals)

RATIO & PROPORTION

_______ Ratios
_______ Proportions
_______ Applications of proportions

Date Completed	Additional Assignments

NAME ______________________

Math Checklist
6 Week Class
Week Six

RATIO & PROPORTION CON'T

_______ More applications of proportions - word problems

_______ Quiz (ratio & proportion)

PERCENT

_______ Using proportion to solve percent problems

_______ Identifying the: part/whole = percent/100

_______ Applying percent proportion in word problems

_______ Quiz (percent)

_______ **ORDER OF OPERATIONS**
_______ Practice steps to follow
_______ Grouping symbols (parentheses, brackets & braces)

FORMULAS
_______ Perimeter
_______ Area
_______ Volume

SIGNED NUMBERS
_______ Rules for adding
_______ Rules for subtracting
_______ Rules for multiplying
_______ Rules for dividing
_______ Word problems with signed numbers

_______ ABLE Post Test

Date Completed	Additional Assignments

APPENDIX G

LEARNER BACKGROUND/ASSESSMENT

1. Assessment Results Form
2. IEP (2 pages)
3. Reading Questionnaire
4. Learning Styles Inventory
5. Cloze
6. GAP

O.S.U. / U.A.W. / I.F.G.
LIFELONG LEARNING CENTER
Assessment Results

LEARNER :

COMMENTS / OBSERVATIONS

INST. INIT. / DATE

Reading Questionnaire

Part 1 ______

Part 2 ______

SelectAble: *Math Level* ______

Reading Level ______

Number Operations *Pre* ______

Post ______

Reading Comprehension *Pre* ______

Post ______

Cloze *5th* ______

8th ______

11th ______

Writing Sample ______

R M I ______

Simulation ______

OSU / UAW / IFG
Lifelong Learning Center
Individual Educational Plan

Name ______________________________ Beginning Date ____________

SSN ____________________ Dept ____________ Clock # ____________

Shift ____________

Preferred Hours ____________________ Number Work ____________

Days ____________________ Home ____________

Work Experience ______________________________

____

Prior Education ______________________________

____

Description of Job Duties ______________________________

____

Personal Goals for Program Short Term: ______________________________

____

Long Term: ______________________________

____

Summary of Assessment Results:

Skill Strengths ______________________________

____

____

Skills Needing Work ______________________________

____

____

____

____

Learning Style ______________________________

____

____

Plan Reviewed:

Date/Init	Revisions

OSU / UAW / IFG
Lifelong Learning Center
Individual Educational Plan

Name ______________________________

Init / Date	Skill Area	Assignment	Purpose / Potential Applications	Notes

G-2

LIFELONG LEARNING CENTER READING QUESTIONNAIRE

Name:____ Date:______________

People have different reading habits. Reading habits are a clue to how people learn. This questionnaire will provide some clues about how you want to learn. Please be honest about your reading habits. THERE ARE NO RIGHT OR WRONG ANSWERS. This information will NOT BE USED IN ANY WAY RELATING TO YOUR JOB.

READING BACKGROUND

1. What kinds of reading do (or might) you do in your job? (Circle as many as you like.)

None
Charts
Blueprints
Graphs
Signs
Job Guides
Operating instructions
Repair manuals
Training manuals
UAW/GM Publications
Computer printouts
Assembly procedures
Others:______________________________________
Trouble-shooting charts
Work-related newspaper articles
Work-related magazine articles

2. How much work-related reading do you do every day?________________________

3. What kinds of writing do (or might) you do in your job? (Circle as many as you like.)

None
Notes
Letters
Forms
Lists
Memos
Diary/journal
Reports
Money-saving suggestions
Others:____

4. How much do you write at work every day?__________________________________

5. What kinds of reading do you do off your job? (Circle as many as you like.)

None
Novels
Comics
Poetry
Bible
Newspapers
Magazines
Manuals/reports
Short stories
How-to books
Science Fiction
Romance
Mystery
Others:____

6. How much reading do you do off the job every day?_________________________

7. What kinds of reading do you do with children, or did you do? (Circle as many as you like.)

None
Storybooks
Comics
Music/songs
Children's magazines
Assembly instructions
Recipes
Other magazines
Their school materials
Others:__________________________________
Game instructions
Religious materials

8. How much do you read to children each day?_______________________________

This document is adapted from The Complete Theory to Practice Handbook of Adult Literacy, by Rena Soifer, Martha E. Irwin, Barbara M. Crumrine, Emo Honzaki, Blair K. Simmons, and Deborah L. Young; (Teachers College Press, Columbia University, New York), pp. 187-192, 1990.

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THE PAGES BELOW ARE FROM THE CHARTING EASYBOOK, PART OF THE APO TRAINING PROGRAM. READ THEM AS IF YOU ARE GOING TO BE ASKED WHAT THEY MEAN. THEN ANSWER THE QUESTIONS.

Why Use Charts?

If you read a newspaper or magazine you will probably see a chart somewhere. One only has to walk around a manufacturing plant to see the many charts used on the job. Charts are used to communicate with:

- clarity
- simplicity

Charts make numerical information simple and clear, thus more understandable. Much of the information autoworkers use to make decisions and take action at work is in the form of numbers. Such as the number of:

- pieces produced
- scrap produced
- defects produced

Clarifying and simplifying the numerical information with a chart will help you make appropriate decisions and take proper action on your job.

This is especially true in the case of:

- explaining changes or trends over time
- presenting a series of different points
- showing relationships among different events

In a work situation charts are also used to:

- provide feedback
- help solve problems

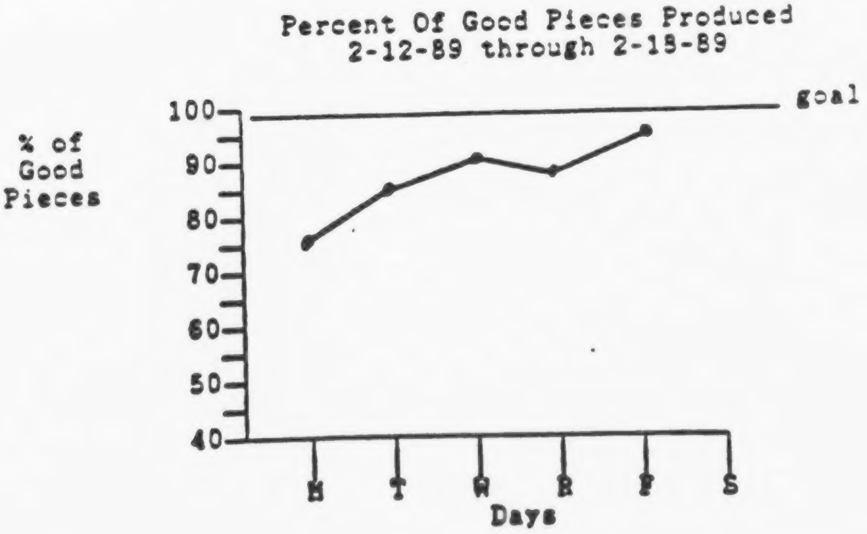
Charts are most useful as a performance improvement tool. A well designed chart will inform you on how close you are to achieving goals. A chart can provide the feedback required to continuously improve your job performance. But what is feedback?

Feedback is the process of providing individuals with knowledge of the results of their actions.

Workers often say the most valuable information they need is to know how they are doing on their job. Charts you or a member of your work group prepare will provide you with the best feedback.

Interpret the chart below to identify feedback on the performance.

Figure 5 Chart Providing Feedback



The line chart above provides us with feedback. In this example it shows that we are achieving our goal of continuous improvement.

A. BEFORE READING

Before you started to read:

1. Did you look at the title, the caption of the graph, and the graph that are in the material? Yes No
2. Did you think about what you already knew about the topic? Yes No
3. Did you think about what you wanted to learn from the reading? Yes No

B. DURING READING

When you read this sample:

4. Did you find any sentences hard to understand? Yes No
5. Did you find the chart hard to understand? Yes No

To understand what you read:

6. Did you read parts of the material again? Yes No
7. Did you picture any of the ideas in your mind when you read? Yes No
8. Did you ask yourself questions when you were reading? Yes No
9. Did you think about what this material means when you were reading? Yes No
10. Did you try to relate this material to things you already know? Yes No
11. Did you pick out key words? Yes No
12. Did you mentally summarize the material in your own words? Yes No

Did you come to any words you didn't know when reading? Write down a word you didn't know.____________________________ If you knew all the words, go to question 18.

13. Did you skip the word? Yes No
14. Did you break the word into syllables? Yes No

15. Did you break the word into meaningful parts? (example: dia-gram)	Yes	No
16. Did you sound the word out?	Yes	No
17. Did you use the other words in the sentence or paragraph to try to figure it out?	Yes	No

C. AFTER READING

When you finished reading:

18. Did you think about how you could use this information on a job?	Yes	No
19. Did you think about getting additional information on the topic of the reading?	Yes	No

D. STUDY SKILLS

Pretend you are studying for a test on the Charting Easybook pages. Go back and read them again. Feel free to underline or make notes.

20. Did you change your speed as you read?	Yes	No
21. Did you underline or highlight parts?	Yes	No
22. Did you take notes?	Yes	No
23. Did you review what you've read?	Yes	No
24. Did you try to memorize any parts of what you read?	Yes	No

Thank You For Answering These Questions!

This document is adapted from The Complete Theory to Practice Handbook of Adult Literacy, by Rena Soifer, Martha E. Irwin, Barbara M. Crumrine, Emo Honzaki, Blair K. Simmons, and Deborah L. Young (Teachers College Press, Columbia University, New York), pp. 187-192, 1990.

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LEARNING STYLES INVENTORY INSTRUCTIONS
(STUDENT)

Read each statement carefully and decide which of the four responses agrees with how you feel about the statement. Circle the number of your responses on the answer sheet.

Sample statement

I would rather do schoolwork in the morning than in the afternoon.

For each question there are four possible responses from "MOST LIKE ME" to "LEAST LIKE ME." Decide which response best describes the way you feel about a statement and circle that number. Respond to the sample statement here by marking the one response that best describes your feelings.

MOST LIKE ME		LEAST LIKE ME	
4	3	2	1

Explanation of Responses

If you are the sort of person who rises early and enjoys working before noon, you would probably respond by circling the (4). If you start slowly and usually begin to work better later in the day, you probably would respond by marking the (1). If you are somewhere in between, then your response should be a (3) or a (2) depending on where you think you fit.

You cannot make a mistake because there is no right or wrong answer. Only the way you feel about the statement is correct. There are 45 statements on the three pages. Please choose an answer for each statement and mark your answers on the answer sheet the same way you did for the sample statement. You may have all the time you want, so please respond to every statement.

Now, if there are no questions, go to the next page titled "HOW I LEARN" and begin. Be sure you respond only once to each statement, but be sure you respond to every statement.

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HOW I LEARN

		MOST LIKE ME			LEAST LIKE ME
1.	When I make things for my studies, I remember what I have learned better.	4	3	2	1
2.	Written assignments are easy for me to do.	4	3	2	1
3.	I learn better if someone reads a book to me than if I read silently to myself.	4	3	2	1
4.	I learn best when I study alone.	4	3	2	1
5.	Having assignment directions written on the board makes them easier to understand.	4	3	2	1
6.	It's harder for me to do a written assignment than an oral one.	4	3	2	1
7.	When I do math problems in my head, I say the numbers to myself.	4	3	2	1
8.	If I need help in the subject, I will ask a classmate for help.	4	3	2	1
9.	I understand a math problem that is written down better than one I hear.	4	3	2	1
10.	I don't mind doing written assignments.	4	3	2	1
11.	I remember things I hear better than things I read.	4	3	2	1
12.	I remember more of what I learn if I learn it when I am alone.	4	3	2	1
13.	I would rather read a story than listen to it read.	4	3	2	1
14.	I feel like I talk smarter than I write.	4	3	2	1
15.	If someone tells me three numbers to add I can usually get the right answer writing them down.	4	3	2	1

		MOST LIKE ME			LEAST LIKE ME
16.	I like to work in a group because I learn from the others in my group.	4	3	2	1
17.	Written math problems are easier for me to do than oral ones.	4	3	2	1
18.	Writing a spelling word several times helps me remember it better	4	3	2	1
19.	I find it easier to remember what I have heard than what I have read.	4	3	2	1
20.	It is more fun to learn with classmates at first, but it is hard to study with them.	4	3	2	1
21.	I like written directions better than spoken ones.	4	3	2	1
22.	If homework were oral, I would do it all.	4	3	2	1
23.	When I hear a phone number, I can remember it without writing it down.	4	3	2	1
24.	I get more work done when I work with someone.	4	3	2	1
25.	Seeing a number makes more sense to me than hearing a number.	4	3	2	1
26.	I like to do things like simple repairs or crafts with my hands.	4	3	2	1
27.	The things I write on paper sound better than when I say them.	4	3	2	1
28.	I study best when no one is around to talk or listen to.	4	3	2	1
29.	I would rather read things in a book than have the teacher tell me about them.	4	3	2	1
30.	Speaking is a better way than writing if you want someone to understand what you really mean.	4	3	2	1
31.	When I have a written math problem to do, I say it to myself to understand it better.	4	3	2	1

		MOST LIKE ME			LEAST LIKE ME
32.	I can learn more about a subject if I am with a small group of students.	4	3	2	1
33.	Seeing the price of something written down is easier for me to understand than having someone tell me the price.	4	3	2	1
34.	I like to make things with my hands.	4	3	2	1
35.	I like tests that call for sentence completion or written answers.	4	3	2	1
36.	I understand more from a class discussion, than from reading about a subject.	4	3	2	1
37.	I remember the spelling of a word better if I see it written down than if someone spells it out loud.	4	3	2	1
38.	Spelling and grammar rules make it hard for me to say what I want to in writing.	4	3	2	1
39.	It makes it easier when I say the numbers of a problem to myself as I work it out.	4	3	2	1
40.	I like to study with other people.	4	3	2	1
41.	When the teachers say a number, I really don't understand it until I see it written down.	4	3	2	1
42.	I understand what I have learned better when I am involved in making something for the subject.	4	3	2	1
43.	Sometimes I say dumb things, but writing gives me time to correct myself.	4	3	2	1
44.	I do well on tests if they are about things I hear in class.	4	3	2	1
45.	I can't think as well when I work with someone else as when I work alone.	4	3	2	1

source: Staff Development Center
Wichita Public Schools

To the instructors:

Directions for administering the cloze.

Tell the learners:

1. Read over the whole passage, then go back and fill in words.
2. Try to use the exact word you think the author would have used.
3. Write one word in each blank.
4. If you have trouble guessing a word, skip it, and go back after you have finished the whole passage and try again.
5. Take as long as you need to finish.

Share with the learners the attached model cloze instrument. Go through it with them, having them use the instructions above. Answer any questions as they come up.

Begin with the Grade 5 passage. Score it discretely while the learner waits.

If the learner correctly fills in 6 words or more, go on to Level 8. Repeat procedure with Level 8. If the learner correctly fills in 10 words or more, go on to Level 11.

For scoring correct responses:
Responses on the cloze test are counted correct when the exact word deleted is replaced. Synonyms are not scored as correct. Tense changes and changes in inflectional endings are not counted as correct. Misspellings are counted as correct if they approximate the deleted word. At this point, do not discuss the learner's choice of answers with him/her.

In approximately 6 weeks, or after 6-8 sessions with the learner, administer the cloze again. This time, discuss, probe in detail the reasons for the learner's choices. Take notes on this discussion on a separate sheet of paper, being sure to do this only after the learner has progressed through the cloze sequence as far as they can. Do not write on the actual cloze forms.

For further information on the cloze procedure refer to Vacca and Vacca, *Content Area Reading - 3rd Edition*, pages 51-54 and McCormick, *Remedial and Clinical Reading Instruction*, pages 113-119.

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Date :__________

This land is your land,

(1)______________ land is my land.

(2)______________ California to the New (3)______________ island,

From the redwood (4)______________ to the Gulf stream (5)______________.

This land was made (6)______________ you and me.

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WASTE FROM OVERPRODUCTION

This waste comes from making too many parts and happens when we get ahead of our orders. Then we consume too (1)_______________ raw materials. We also (2)_______________ to pay people to (3)_______________ when they don't need (4)_______________, and we have to (5)_______________ too many parts. This (6)_______________ too much inventory. What (7)_______________ need to do is (8)_______________ make good parts, at (9)_______________ cost when the customer (10)_______________ them. Then we don't have waste from making too many parts.

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WASTE FROM PRODUCT DEFECTS

When defects occur at one place, operators at other places waste time waiting, adding cost to the product and to production lead time. Also the product may (1)__________ to be reworked or (2)__________. If a defect has (3)__________ in the assembly operations, (4)__________ labor is needed to (5)__________ the product, and more (6)__________ are needed for reassembly. (7)__________ have to be changed (8)__________, because of the defects.

(9)__________ out bad parts from (10)__________ parts also means more (11)__________. So there is waste (12)__________ the parts and the (13)__________ of work already in (14)__________ parts.

An even worse (15)__________ happens when customers find (16)__________ after the product is (17)__________. There are both warranty costs and more delivery costs, and future business with the customer and market share may be lost.

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p.4

WASTE

Waste is anything other than the minimum amount of equipment, materials, parts, space and workers time, which are absolutely essential to add value to the product.

THE SEVEN WASTES

1. Waste from overproduction.
2. (1)______________ of waiting time.
3. Transportation waste.
4. Processing (2)______________.
5. Inventory waste.
6. Waste of motion.
7. Waste (3)______________ product defects.

WASTE FROM OVERPRODUCTION

This (4)______________ is created by producing goods over (5)______________ above the amount required by the (6)______________. This is typically created by getting (7)______________ of the work. When this happens, (8)______________ raw materials are consumed and wages (9)______________ paid for unneeded work, thereby creating (10)______________ inventory. This in turn requires additional (11)______________ of materials. We should make sure (12)______________ only the amount required by the (13)______________ is produced at high quality, low (14)______________ , and at the time needed.

WASTE (15)______________ WAITING TIME

This can be caused (16)______________ waiting for a jobsetter when a (17)______________ quits running, then after he finds (18)______________ problems you might have to wait

T

(19)______________ for an electrician, or maybe a (20)______________ repair. How about waiting for a (21)______________. Now an APO can call their (22)______________ electrician or get their own stock.

(23)______________ WASTE

Ill-planned layouts may make long-distance (24)______________ necessary. They can also result in (25)______________ or triple handling of parts that (26)______________ been put away in a disorderly (27)______________ and kept in temporary storage and (28)______________ storage locations. Often we are amazed (29)______________ discover how many miles a product (30)______________ travel through the factory before it (31)______________ completed.

In order to eliminate this (32)______________, improvement in layout, coordination of processes, (33)______________ of transportation, housekeeping and workplace organization (34)______________ to be considered.

PROCESSING WASTE

When (35)______________ are not well maintained or prepared (36)______________ may have to use extra effort (37)______________ processing the materials. Certain defects may (38)______________ produced by these inappropriate procedures.

INVENTORY (39)______________

Excess inventory increases the cost of (40)______________ product. It requires extra handling, extra space, extra interest charges, extra people, extra paperwork, and so on.

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THE GAP Learner Assessment/Diagnosis Form

Directions for administering the gap:

Tell the learners:

1. Fill in the blanks when you come to them in your reading of the selection.
2. Try to use the exact word you think the author would have used.
3. Write only one word in each blank.
4. If you have trouble guessing a word, skip it, and go back after you have finished reading more, or the whole selection, and try again.
5. Take as long as you need to finish.

Using the gap:

Responses to the gap are not strictly correct or incorrect, as it is largely a diagnostic tool for comprehension of workplace text. However, as you go through it with the learner, circle a response when he or she replaced the exact word. When the response is a synonym, or the full form, waste, instead of the pronoun it, note that too, with SYN over the word in the blank.

When you're going over the text with the learner, discuss and probe in detail the reasons for their choices. Take notes on this discussion on a separate sheet of paper.

Get copies of the gap itself and this extra sheet of notes to me, Johanna, as soon as possible after administration. I'll do a semantic field/comprehension level analysis, then get back to you with the fuller diagnosis on each learner.

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WASTE

Waste is anything other than the minimum amount of equipment, materials, parts, space and workers time, which are absolutely essential to add value to the product.

THE SEVEN WASTES

1. Waste from overproduction.
2. Waste of waiting time.
3. Transportation waste.
4. Processing waste.
5. Inventory waste.
6. Waste of motion.
7. Waste from product defects.

WASTE FROM OVERPRODUCTION

This waste is created by producing goods over and above the amount required by the market. (1)________________ is typically created by getting ahead of the work. When this happens, more raw materials are consumed and wages are paid for unneeded work, thereby creating unnecessary inventory. This in turn requires additional handling of materials. We should make sure that only the amount required by the customer is produced at high quality, low cost, and at the time needed.

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WASTE OF WAITING TIME

(2)________________ can be caused by waiting for a jobsetter when a machine quits running, then after he finds the problems you might have to wait longer for an electrician, or maybe a machine repair. How about waiting for a stockhandler. Now an APO can call their own electrician or get their own stock.

TRANSPORTATION WASTE

Ill-planned layouts may make long-distance transportation necessary. They can also result in double or triple handling of parts that have been put away in a disorderly manner and kept in temporary storage and switching storage locations. Often we are amazed to discover how many miles a product must travel through the factory before (3)________________ is completed.

In order to eliminate this (4)________________, improvement in layout, coordination of processes, methods of transportation, housekeeping and workplace organization need to be considered.

PROCESSING WASTE

When fixtures are not well maintained or prepared operators may have to use extra effort in processing the materials. Certain defects may be produced by these inappropriate procedures.

INVENTORY WASTE

Excess inventory increases the cost of a (5)________________. It requires extra handling, extra space, extra interest charges, extra people, extra paperwork, and so on.

- Dispose of obsolete materials.
- Do not produce items not required by the subsequent process.
- Do not purchase or bring in items in large lot sizes.
- Manufacture products in small lots.

WASTE OF MOTION

Whatever time is not spent in adding value to the product should be eliminated as much as possible. Pick and place is another example of movement that can be reduced by keeping parts or tools close to where they are used or even eliminated by using chutes and other fixtures. Machines should be placed so that the operator's walking time is minimized.

WASTE FROM PRODUCT DEFECTS

When defects occur at one place, operators at subsequent stations (6)________________ time waiting, thereby adding cost to the product and adding to (7)________________ lead time. Furthermore, rework may be required or the defective products are scrapped. If a defect has occurred in the assembly operations, additional labor is required to disassemble the product, and additional (8)________________ are required for reassembly. Obviously, schedules must be adjusted to accommodate these changes.

Sorting out bad parts from good parts also requires additional labor. There is a waste of both material and the value of work already added to the parts.

An even worse case exists when customers find defects after product delivery. Not only are warranty costs and additional delivery costs incurred, but future business with the customer as well as market share may be lost.

SIMPLIFY COMBINE AND ELIMINATE

The difficulty in eliminating (9)________________ is that most of us have not directed our efforts to finding waste and eliminating (10)________________.

The basic idea of improvement is simple. We want to do out work easier, faster, cheaper, better, and safer. To do so, a basic approach to improve our operation is to simplify, combine, and eliminate.

SIMPLIFY

Color coding is one of the simplest methods to eliminate unnecessary confusion in daily plant operations. Corresponding bolts, tools, and dies can be painted the same color to help with quick setup operations, or lines or departments can be defined by certain colors for easy transferring of parts and materials.

COMBINE

A machine operation uses machines, each handled by a different operator. Since each machine is highly automated, the operator's time is not well utilized. They spend most of their time watching the machine operation-adding no value to the (11)________________. By moving the machines closer together and combining the work, one operator could run both machines and still produce the same total output.

ELIMINATE

In a setup operation, adjustment typically took a large portion of the operator's time. But simple solutions can often be found to eliminate adjustment work. Die height was standardized so that setup was much simpler, eliminating the adjustment process. The same idea may be applied in other areas such as eliminating horizontal adjustment by providing locator pins or standardizing bolt hears.

During transfer of materials between sequential processes, unnecessary energy was wasted in double handling of the materials, trucking, and pick and place of (12)________________ on the conveyor.

This waste was eliminated by synchronizing the neighboring processes and developing one-piece flow production, passing the work-piece from one operator to the next with less material handling.

WASTE

Waste is anything other than the minimum amount of equipment, materials, parts, space and workers time, which are absolutely essential to add value to the product.

THE SEVEN WASTES

1. Waste from overproduction.
2. Waste of waiting time.
3. Transportation waste.
4. Processing waste.
5. Inventory waste.
6. Waste of motion.
7. Waste from product defects.

WASTE FROM OVERPRODUCTION

This waste is created by producing goods over and above the amount required by the market. (1)_____This_____ is typically created by getting ahead of the work. When this happens, more raw materials are consumed and wages are paid for unneeded work, thereby creating unnecessary inventory. This in turn requires additional handling of materials. We should make sure that only the amount required by the customer is produced at high quality, low cost, and at the time needed.

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WASTE OF WAITING TIME

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INVENTORY WASTE

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The basic idea of improvement is simple. We want to do out work easier, faster, cheaper, better, and safer. To do so, a basic approach to improve our operation is to simplify, combine, and eliminate.

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Color coding is one of the simplest methods to eliminate unnecessary confusion in daily plant operations. Corresponding bolts, tools, and dies can be painted the same color to help with quick setup operations, or lines or departments can be defined by certain colors for easy transferring of parts and materials.

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- Manufacture products in small lots.

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Sorting out bad parts from good parts also requires additional labor. There is a waste of both material and the value of work already added to the parts.

operator could run both machines and still produce the same total output.

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During transfer of materials between sequential processes, unnecessary energy was wasted in double handling of the materials, trucking, and pick and place of (12) ____materials____ on the conveyor.

This waste was eliminated by synchronizing the neighboring processes and developing one-piece flow production, passing the work-piece from one operator to the next with less material handling.

APPENDIX H

RECRUITMENT

1. How to Get Employees to Use LLC
2. LLC Awareness Survey
3. Free Soda Tickets
4. Top 5 Recruiting Methods
5. "Ask Me" Training Plans, Action Plans, and Materials
6. LLC Fliers

December 11, 1990

Brainstorming Session for Recruitment for LLC

In Attendance: S. Pritz, B. Harris, M. Sidenstick, D. Sharp,
V. Young, B. Goddard, M. Pierce, D. Ferrilli,
M. Girkins, K. Corbet, J. Collins, P. Connors,
T. Kruglinski, S. Imel, M. Burgess, D. Garling

HOW TO GET MORE EMPLOYES TO USE THE LIFELONG LEARNING CENTER

GENERAL SUBJECTS

Rebates
New & Improved
Coupons
Giveaways - Contest
Humor
Sweepstakes
Trivia
"Free"
Open House
Personal Invitation
Door to Door Sales
Endorsements - Celebrity
Singing
Jingles
Unrelated Ad (Suspense)
[illegible] (Teaser)
Large Space Ads
Puzzle
Banners (Colorful)
Concern & Fear
Benefit Awareness
Plane - Banner - Balloon
Introductory Workshops
Visibility
Slogans (Where Are You Going?)
Do-Dads

Sentiment
Babies - Animals
Catchy - Different -Unique
"Stupid" Ads (Ricart)
Get-away (Escape)
Outdoors - Wildlife
Testimonial
Eye Catching Mailing
Off-Beat (take away Stigma)
Paycheck stuffers
People Believable Way
Bumper Stickers
Play
Video
Band
Parade
Peer Endorsement
Friends-Personal Relationships
Comfort/Safety
Linking-Connecting
Visits to Weekly BU Meetings
Raffle
Local TV Coverage
Arrows/Footprints on Floor

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HOW TO GET MORE EMPLOYES TO USE THE LIFELONG LEARNING CENTER

VISIBILITY

Arrows/Footprints
Visit Weekly BU Meetings
Slogans (New Year)
Burma Shave Ads
Banners
Plane
Balloon
Bumper Stickers
Video
Band
Open House

Coupons
Do-Dads
Catchy-Different-Unique
Personal Invitation (Mail?)
Eye Catching
Singing
Local TV Coverage
Jingle
Play
Parade

CONTEST

Rebates
Coupons
Cruise
Puzzle

Raffle
Sweepstakes
"Free"
Challenge

PERSONAL RELATIONSHIP/COMFORT

Teamwork
Friends
People (Believable)
Visit Weekly BU Meetings
Sentiment
Safe Comfortable
[illegible] [illegible] Your Sales
Employe Suggestion Box

Personal Invitation
Testimonial
"Like Me" Syndrome
Babies - Animals
Linking & Connecting
Concern & Fear
Celebrity Endorsements

MISCELLANEOUS

Eddie Castor
Super Bowl
Arrive
Theme: Where are you going?
Songs: Man in the Mirror - Michael Jackson
Do you know where you are going? - Diana Ross
Wilson Philips
Fifth Dimension

Personal Growth
Burma Shave Ads

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HOW TO GET MORE EMPLOYES TO USE
THE LIFELONG LEARNING CENTER

GROUP ASSIGNMENTS

Group 1: THEME	Sandy Pritz Tom Kruglinski Marsha Sidenstick

Burma Shave Ads
Arrows
Footprints

Group 2: OPEN HOUSE	Margie Girkins Janet Collins Pat Connors Debbie Ferrilli Mark Pierce

Personal Invitation
[illegible]/Payroll Stuffers
[illegible]
Suggestion Box

Group 3: MARKETING	Betty Harris Bob Goddard Vickie Young	Greg Martin Ralph Francisco

Establish Theme - Where are you going?
Pins
Video
Eddie Castor
Weeklong Media Blitz
Suggestion Box

Next Meeting: January 8, 1990
Time: 10:30 AM
Place: Auditorium Classroom

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HOW TO GET MORE EMPLOYES TO USE THE LIFELONG LEARNING CENTER

GROUP I: THEME
Burma Shave Ads
Arrows
Footprints

BY: Sandy Pritz
Tom Kruglinski
Marcia Sidenstick

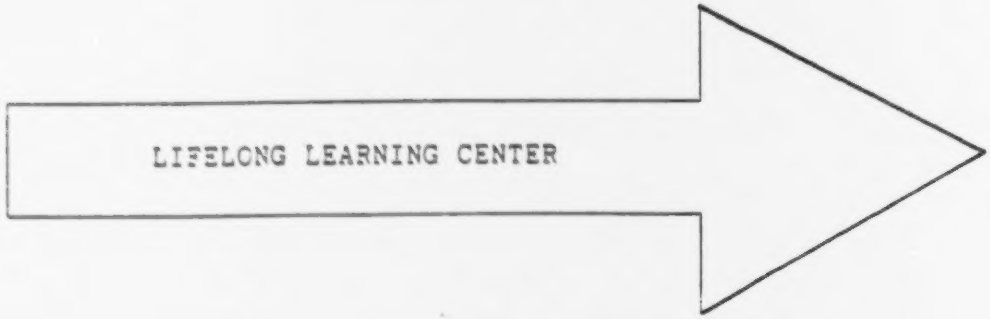
Burma Shave Signs - In place for first day
Signs remain until damaged
Place along Main Driveways leading into plant
- Administrative entrance
- Broad Street gate
- Georgesville Road gate

Four (4) signs with message
5th sign at the end of each series states: Lifelong Learning Center
Long and narrow signs must be:
- Waterproofed
- Silcone
- Shrink Wrap
- Laminated
- Scotchguard

Arrows- Arrows are to be 3 feet long, 2 feet wide - if cost permits
Arrows are to contain the following:
- ~~Take New Direction~~
- Get on the Road to Success
- Where Are You Going
- Stairwells Only: Aim High

Cost Factor:
- Size of signs
- Amount of color including print color
- Material - cardboard, vinyl, posterboard
- Number of signs
- Adhesive backed arrows

Arrows are to be placed on walls along aisles leading to LLC
Aisles with no walls - use easels if available



Footprints-

Start out with footprints first day
Footprints are to be various sizes, shapes and bright colors
Stencil footprints on floor at the plants 3 main entrances - east gate, south gate & Administration Building - all footprints lead to the LLC
Place a sign at the top of the stairs stating: You have come this far, now come on into the Lifelong Learning Center
Stencil "Lifelong Learning Center" on random footprints later in week to add interest
All footprints must be stenciled onto floor the night before kickoff
Need authorization to spray paint footprints onto floor
Need manpower authorization and approval to stencil footprints
If the group likes idea, could check and see if vinyl adhesive footprints are available for Administration Building floors if not use walls

LIFELONG LEARNING CENTER AWARENESS SURVEY

Are you aware of our new Lifelong Learning Center?

_____ YES   _____ NO

If YES complete the following if NO go to question # 8

1. How did you hear about the new center?

Signs or Posters	___ YES	___ NO
Buckeye Bulletin	___	___
News & Views (Union Paper)	___	___
Supervisor	___	___
Co-worker	___	___

Other ______________________________

2. Do you know where the Lifelong Learning Center is located?

___ YES

___ NO

*** if NO give them a handout with map**

3. What types of service do you know of that are available in the LLC?

Basic Skills	___ YES	___ NO
GED	___	___
Computer-Aided (PLATO or Tutorials)	___	___
Workshops (PACE)	___	___

Other ______________________________

4. Have you visited the center?

___ YES

___ NO

5. Have you used any of the services?

___ YES

___ NO

6. What other services or courses would you like to see available through the center?

____

____

7. What do you think would be the most effective way to reach employes?

____

____

If NO:

8. * give them a handout with map

* explain services

* ask questions 6 & 7

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Lifelong Learning
Center

Free 16oz. Soda w/Purchase
For Visiting The Lifelong Learning Center

Dave Montanya
Authorized Signature

Date

Learning Center Initials

Lifelong Learning
Center

Free 16oz. Soda w/Purchase
For Visiting The Lifelong Learning Center

Dave Montanya
Authorized Signature

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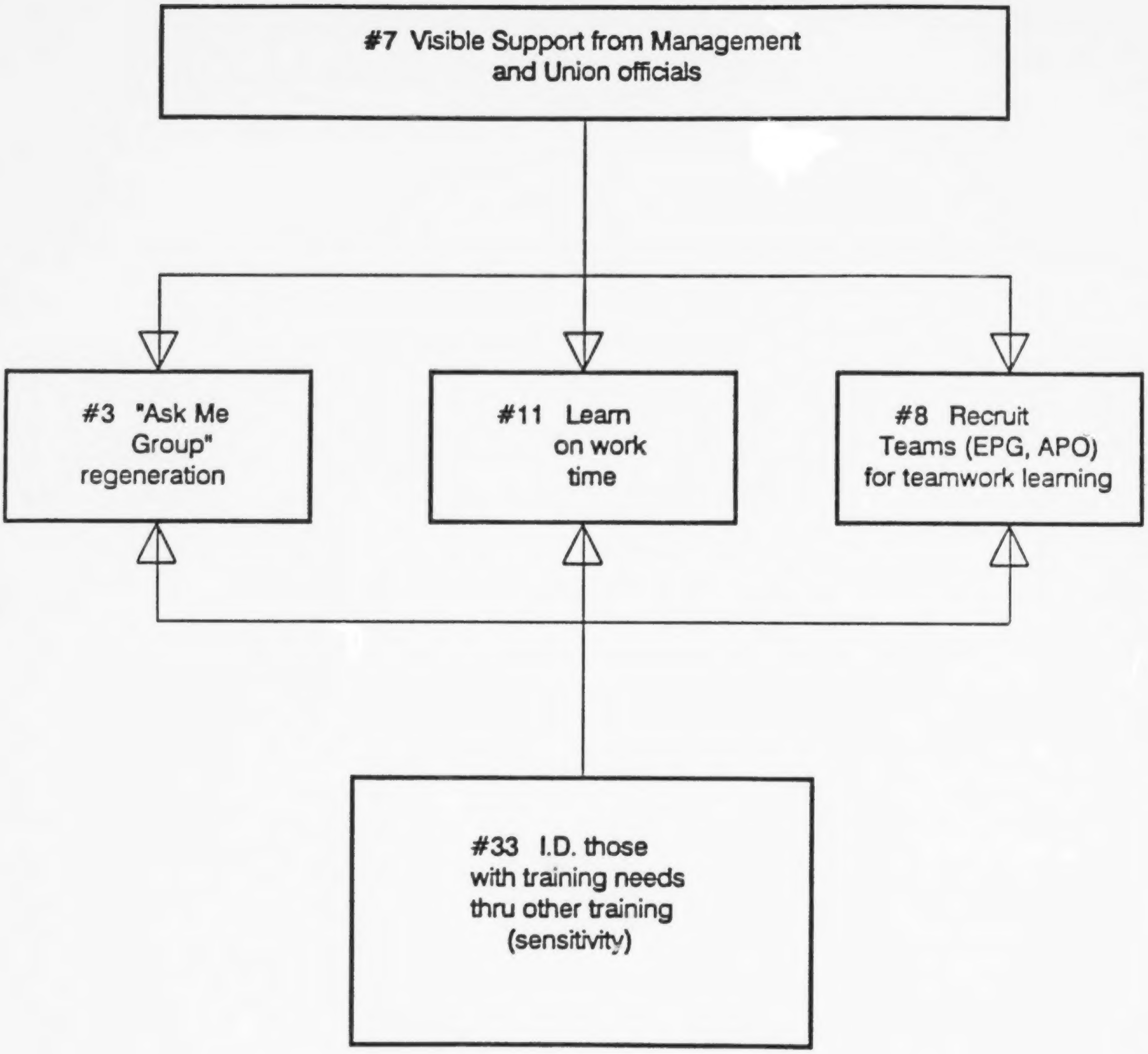
Learning Center Initials

TOP FIVE RECRUITING METHODS



#7 Visible Support from Management and Union officials

#3 "Ask Me Group" regeneration

#11 Learn on work time

#8 Recruit Teams (EPG, APO) for teamwork learning

#33 I.D. those with training needs thru other training (sensitivity)

OSU/IFG/GM/UAW Meeting
March 12, 1991

ACTION PLAN
for achieving

Identifying those with Training Needs through Other Training

Submitted by Bill Dowling and Susan Imel

Present a 60 to 90 minute training session to IFG Training Staff to develop sensitivity to identifying those who could benefit from basic skills training

Who: Bill Dowling, Susan Imel, Margie Gerkins or other representative from Basic Skills Instructional Staff

What: Session Content

1. Identifying Coping Strategies
    a. List from Dowling and Imel
    b. Suggestions and discussion from trainers
2. Bridging the Gap--Making Referrals
    a. Sensitivity to person's condition
    b. Becoming acquainted with Basic Skills Program in the LLC
    c. Referral Process

When: Scheduled as needed; initial session to be held as soon as possible.

COPING STRATEGIES OF ADULTS WITH LOW BASIC SKILLS

You can help identify adults with low basic skills and refer them to the Lifelong Learning Center.

On the Job

1. When asked to do paperwork, an individual may often give the following excuses:
    a. I forgot/broke my glasses.
    b. I hurt my hand/wrist.
    c. I am in a hurry. I don't have time to read (or do) it now.
2. An individual may often ask another: "What did you think about yesterday's memo?" This way a low-level reader can find out what was in a memo without having to read it.
3. An individual may always or frequently ask for oral clarification of written instructions.
4. An individual may forgo on-the-job training or promotion opportunities.
5. An individual may never complete any forms or written work in conjunction with training.
6. An individual may become belligerent in response to a request for information about written materials.

In General

1. An adult may always order a hamburger or what companions order.
2. An adult may never read the newspaper but may possibly carry one around to look as though he/she does.
3. An adult may never refer to written notes nor write them.
4. An adult may have trouble reading handwriting of others.
5. An adult may always be too busy to stop and read something, no matter how important.

DRAFT
3/8/91

ACTION PLAN

for achieving
Training for "Ask Me" Group

Submitted by Bill Dowling and Susan Imel

A 60 to 90 minute training session will be held to assist "Ask Me" Group members in making referrals to the Basic Skills Program

Who: Bill Dowling, Susan Imel, and member of Basic Skills Instructional Staff

What: Session would consist of following content:

1. Identifying prospects (an overview of coping strategies)
2. How to Get the Prospect Upstairs--Approaching prospects
    a. What to say
    b. What not to say
    c. How to say it
    (may include role play)
3. Strategies (all to be arranged by "Ask Me" representative)
    a. Tour of LLC
    b. Introduction to one of the teachers (on the floor)
    c. Connecting prospect with current IFG personnel, i.e., Ralph, Debbie, Marvin, Luke, Mark
    d. Introducing prospect to one of current learners (would have to be agreed upon previously due to confidential nature of program)

When: As soon as "Ask Me" Group is regenerated and training session can be arranged.

Getting Them Upstairs (How?)

1. Using examples - relating to well know person ie. Waylon Jennings getting his GED
2. Referral into appropriate program
3. Take people "where they are"
4. Offer course (outside of workplace) that teaches skills needed in workplace
5. Getting word out to 2nd and 3rd shift employes
6. Word of mouth

Ways To Approach People

1. Invite to LLC for a workshop
2. Invite to LLC during charting classes, APO classes or any workshops that are conducted
3. Getting to know and gain confidence
4. Video to get people in the door (not just something that will pertain to job)
5. Emphasize confidentiality and learner sets own pace and goals (put this info in video)
6. Bring someone up at end of shift
7. Testimonial
8. Explain this is not like "school"
9. Non threating, sincere, persistent
10. "Ask Me" group wear tee shirts. Use JOBS Bank
11. Canvas plant (don't single people out)

Follow Up Meeting Scheduled

Date: April 18, 1991

Time: 9:00 A.M. - 11:00 A.M.

Place: Plato Training Room

Minutes of April 18, 1991

In Attendance: T. Ayers, J. Bowen, B. Dowling, D. Ferrelli, J. Higgins, S. Imel, L. Kidd, J. Lutz, M. Pierce, T. Ragland, A. Scott, M. Sidenstick, V. Terminello, P. Vincent

Purpose: How to identify and approach employes who we feel may benefit from the Learning Center.

How do we get them up stairs?

What are they like? (How do we think they feel?)

1. Defensive
2. Shy
3. Feel inferior (down on yourself)
4. Lack of confidence
5. Think they are "stupid"
6. Worried about what others think
7. Intimidated by location of L.L.C. (It's up front)
8. Personal appearance (they feel dirty & greasy)
9. Behavior - loud & obstreperous (making a disturbance)
10. Afraid classes detract from profit sharing
11. Negative attitude toward school
12. Learning is not fun or enjoyable
13. Education (learning is secondary)
14. Don't believe "plant" may be threatened
15. Don't believe learning can be useful
16. Feel they're extension of a machine
17. Looking for retirement activity
18. Talents are unknown & unused by self & management
19. Afraid of changes, A.P.O., E.P.G., etc.
20. Don't know LLC teachers are neat!
21. Rumor: Training comes before disaster!

Role play reaction

1. Mention outside interest
2. Emphasize team work
3. Avoid - put off - change subject
4. Reluctance to go into training (because of non-acceptance of changing work place)
5. Buddy approach
6. Put on defensive
7. May not accept team work
8. Group problem rather than an individual problem
9. Some supervisors could suggest LLC (but not all)
10. How are "words" perceived

Strategies

1. Get list of meetings (EPG, safety, departmental, etc.)
2. Contact meeting facilitator
3. Go to meetings
4. Establish goals i.e. (I'm going to talk to ________ about the LLC)
5. Teachers visit employes on floor
6. Put in the Buckeye Bulletin an article with pictures of recruiters. Identify them!
7. Set up a learning center (annex) downstairs, offer a workshop. i.e. spelling

Ways to Approach People

1. Invite to LLC for a workshop
2. Invite to LLC during charting classes, APO classes or any workshops that are conducted
3. Getting to know and gain confidence
4. Video to get people in the door (not just something that will pertain to job)
5. Emphasize confidentiality and learner sets own pace and goals (put this info in video)
6. Bring someone up at end of shift
7. Testimonial
8. Explain this is not like "school"
9. Non threating, sincere, persistent
10. "Ask Me" group wear tee shirts. Use JOBS Bank
11. Canvas plant (don't single people out)

Follow Up Meeting Scheduled:

Date: May 2, 1991
Time: 10:00 A.M. - 11:00 A.M.
Place: Plato Training Room

ACTION PLAN
for achieving

Identifying those with Training Needs through Other Training

Submitted by Bill Dowling and Susan Imel

Present a 60 to 90 minute training session to IFG Training Staff to develop sensitivity to identifying those who could benefit from basic skills training

Who: Bill Dowling, Susan Imel, Margie Gerkins or other representative from Basic Skills Instructional Staff

What: Session Content

1. Identifying Coping Strategies
   a. List from Dowling and Imel
   b. Suggestions and discussion from trainers
2. Bridging the Gap--Making Referrals
   a. Sensitivity to person's condition
   b. Becoming acquainted with Basic Skills Program in the LLC
   c. Referral Process

When: Scheduled as needed; initial session to be held as soon as possible.

COPING STRATEGIES OF ADULTS WITH LOW BASIC SKILLS

You can help identify adults with low basic skills and refer them to the Lifelong Learning Center.

On the Job

1. When asked to do paperwork, an individual may often give the following excuses:
   a. I forgot/broke my glasses.
   b. I hurt my hand/wrist.
   c. I am in a hurry. I don't have time to read (or do) it now.

2. An individual may often ask another: "What did you think about yesterday's memo?" This way a low-level reader can find out what was in a memo without having to read it.

3. An individual may always or frequently ask for oral clarification of written instructions.

4. An individual may forgo on-the-job training or promotion opportunities.

5. An individual may never complete any forms or written work in conjunction with training.

6. An individual may become belligerent in response to a request for information about written materials.

In General

1. An adult may always order a hamburger or what companions order.

2. An adult may never read the newspaper but may possibly carry one around to look as though he/she does.

3. An adult may never refer to written notes nor write them.

4. An adult may have trouble reading handwriting of others.

5. An adult may always be too busy to stop and read something, no matter how important.

ROLE PLAY--SITUATION 1

Characters: Jim and Bob, two men who have worked together at IFG for more than 25 years. During this period, Jim and Bob have organized a bowling team with some other IFG employees and coached their sons' Little League Team. In addition, their families have become well acquainted and the two families enjoy joint social activities.

Situation: One day Jim suggests to Bob that they volunteer for APO training. Bob, however, says that he doesn't want anything to do with "the new-fangled way of manufacturing." At first Jim is puzzled and he talks over Bob's reaction with his (Jim's) wife. She reminds him that Bob didn't graduate from high school and suggests that maybe he is concerned about his ability to understand the training. Jim had noticed when they were bowling that Bob always found an excuse not to keep score but he had never thought too much about it. Now, however, he is concerned that Bob will "be left behind" if he doesn't get in with an APO team.

Role Play: How should Jim approach Bob about going to the Lifelong Learning Center? What should he say to him?

ROLE PLAY--SITUATION 2

Characters: Jane, a newly appointed supervisor, and Gary, a 25-year employee, who is under her supervision. Although Jane and Gary have both worked at IFG for a long time, this is the first time that they have been in the same area.

Situation: A new piece of equipment has been installed in Jane's area and Gary has a key role in its operation. After initial training on the machine, Jane notices that instead of reading the manual when he is having trouble operating the equipment, Gary just randomly pushes buttons. When she confronts him about this, Gary responds by saying, "Oh, I'm just one of those people who learns through trial and error." Even after she helps him locate information in the manual, Jane notices that Gary goes back to his old way of "problem solving." Jane begins to suspect that Gary can't read very well.

Role Play: What does Jane say to Gary?

ROLE PLAY--SITUATION 3

Characters: Sue and Janet, two women who have recently met during APO training. Although both have worked at IFG for more than 15 years, they have been on different shifts. Now, they have been assigned to an APO team on first shift. Because Sue has always been on first shift, she heard about the Lifelong Learning Center when it opened last fall and has been going for basic skills instruction since October.

Situation: During training, Sue noticed that Janet always wanted to work with her on group assignments. Now that they are on the floor, operating as an APO team, it is even worse. Janet does not seem to be able to do anything by herself, especially when it involves math calculations. Sue is proud of the way she has improved her math ability since brushing up at the LLC so at first she didn't care that Janet was always asking for help. However, always stopping to explain things soon began to interfere with her work. Finally, Sue realizes that Janet probably needs some brush up work in math herself.

Role Play: What does Sue say to Janet about the programs at the Lifelong Learning Center and how does Janet respond?

Minutes of April 11, 1991

In Attendance: T. Ayers, L. Bledsoe, J. Bowen, B. Dowling,
D. Ferrelli, J. Ferrelli, M. Girkins,
S. Imel, L. Kidd, G. LaBeau, M. Pierce
T. Ragland, A. Scott, V. Terminello

Purpose: How to identify and approach employes who we feel may benefit from the Learning Center.

Coping Strategies

1. Reluctant to do math work
2. Ignore reading tasks
3. Team up with someone who can
4. Have someone else read or write it for them
5. Asks a lot of questions "simple"
6. Behavior – Hostility/Anger
7. Seeking visual/oral instructions rather than reading
8. Asking directions rather than read
9. Asking about details of reading materials
10. Never volunteer for training
11. Reluctant to move to another job
12. Withdrawal from reading and writing (refusal to do worksheet) "I don't need all of that"
13. Taking materials "home"
14. Reluctant to lead or have weakness exposed
15. One who never reads during breaks
16. Unaware of need for literacy
17. May be learning disabled
18. Hatred of school
19. Getting along fine, thank you!
20. Lack of confidence, self image
21. Patterns of schooling

"ASK ME" MEETING

Minutes of May 2, 1991

In Attendance: J. Higgins, P. Vincent, V. Terminello,
T. Ragland, A. Scott, J. Collins,
M. Girkins, L. Kidd, D. Ferrelli, S. Imel,
M. Sidenstick, B. Dowling, T. Ayers,
M. Pierce, L. Bledsoe

Purpose: Did we succeed in recruiting?

Previous meetings:

How to identify and approach employes who we feel may benefit from the Learning Center.

How do we get them up stairs?

We need to recognize those persons who have graduated from GED. Ex. Commencement exercise. (certificate)

Group decided we should have an "Ask Me" / campaign day for all recruiters.

A. Scott - bring training classes (APO, charting) to the LLC. Starting May 20, 1991 trainers should wear LLC "Ask Me" badges during class.

P. Vincent - people ask "why should I continue my education"
"It's not going to get me any place"
"What's in it for me?"

L Kidd, D. Ferrelli - assigned to nag Mark about LLC annex.

Follow Up Meeting Scheduled:

Date: May 30, 1991
Time: 9:00 A.M. - 11:00 A.M.
Place: Plato Training Room

Susan Imel's notes from May 30, 1991 meeting of "Ask Me" Group and IFG Trainers

General Comments

1. In summer, heat and humidity is very bad on floor; after 8 hours, people just want to go home and vegetate (M. Pierce)

2. Margie Gerkins and Pat Connor are sending personal notes to people who have not been into the LLC for a while.

3. Six persons have taken the GED; one has passed and five others will know results soon. For those who pass (and who wish the achievement to be acknowledged), Mark plans a lunch with Harry Lambert, pictures, etc.

Responses from People when Talking about the LLC

1. In APO training, only one or two (out of 21 or 22) actually knew about the LLC.

2. Location was mentioned. "Why do we have to walk all the way up here?"

3. Second shift people don't know that instructors are available after shift ends, i.e., at midnight. There is a perception that LLC operates around first shift schedule.

4. Second shift people don't want to be "told" to come in before the shift. Again, the perception is that they are encouraged to come in prior to shift, rather than after.

5. Question being heard: "Is it (LLC) available to those who are laid off?"

6. Some people think that LLC is only about finishing their education, i.e., GED.

7. One recruiter was told by an employee, "I've got 25 years in and you're not going to get me up there (LLC). I don't think you are going to get the older people up there."

Recruitment Ideas

1. Table in cafeteria during lunch (Pat C. is beginning again).

2. Instructors walking around on the floor creates visibility.

3. Instructors going to EPG meeting with members of "Ask Me" or someone from training group. Purpose: to discuss LLC.

4. Get Business Unit meetings schedules and person to contact in Units; go to BU meetings.

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5. Get schedule for biweekly safety meetings because everyone attends those. (Those who are most reluctant to come to LLC aren't likely to have volunteered for an EPG.)

6. Have a booth at the Quality Fest in the fall (assuming it is held).

7. Instructors should be involved in Operation Feed.

8. Put LLC name on everything/everywhere.

9. Analyze records to see where non-h.s. graduates are working and put recruitment emphasis in that area. (M.P.--It could be done but others thought it was not a good idea; it could easily lead to identification of certain areas of the plant as housing the "dummies."

10. Need to aim recruitment efforts at those with least seniority. Look at benefits that will accrue to those who get involved in LLC programs.

11. Feature LLC in articles in union paper. It is passed out on the way out the door and many take it home where it can be read by family members.

12. Consider more flexibility in paid time off for education.

13. May be beneficial to know that individuals can go to LLC for assistance with homework. Consider instituting study groups or tutorial sessions.

14. Can "Ask Me" group members say "This may be beneficial to you in case you lose your job?" Discussion about the fact that many are "very secure and comfortable here" and are not motivated to seek additional education.

15. Develop network of people in plant who are in school or have completed education with expertise in certain areas. Network can be used to receive assistance.

16. "Layoffs are starting to dictate who's in plant." (Meaning, I think, who is in pool of potential LLC participants.)

17. Need to target high school graduates or above who aren't comfortable with their skill levels.

18. Consider instituting career development workshops.

Other Impressions/Notes

1. There was a great deal of discussion about how hourly workers are considered second class citizens by salaried employees. Some in group have even heard this sentiment expressed by salaried people. According to LuAnne, there is a stigma attached to being an hourly worker because salaried employees think they are dumb.

2. Some in group expressed surprise at number of non-h.s. graduates in plant. Several seemed to be under impression that this was not an issue.

NOTES FROM 5/30/91 MEETING WITH ASK ME TRAINERS/RECRUITERS
. D. Dowling

1. (M. Pierce) during the summer, workers are drained after 8 hours on a hot and demanding job, therefore, they are not too interested in learning.

2. An employee said the LLC is beautiful. The implication (I heard) is that it is imposing or perhaps too nice.

3. Another comment: The LLC is too far away from the work floor.

4. (Annette) 2 of 20 in APO training said they didn't know of the existence of the LLC.

5. Family situations (child care, etc.) may prevent some from taking advantage of LLC.

6. Re: availability of LLC and staffing--Some don't know when they can go to the LLC. Shift changes and third shift make using LLC problematic.

7. Some are sensitive to coming to the LLC when they perceive it is busy.

8. It is UnAmerican to "come to work early." (Marge G.)

9. The newest enrollees (since our last session with the Ask Me group) are interested in attending Columbus State University (College).

10. Suggestions for SPREADING THE WORD ABOUT THE LLC: An "Ask Me" day, similar to other DAYS celebrated or memorialized throughout the plant; Attend meetings of safety groups to spread the word; Build LLC into Operation Feed, a plant happening into which almost everyone plugs.

11. LuAnne: Specific skills are needed rather than basic skills. (I'm not certain of what she meant by that).

12. Salaried employees and skilled trades persons look down on hourly workers as being dummies. (Said with considerable emotion and reiterated by Jack, Jerry, Lu Anne, et al.)

13. We should focus on 'younger' workers, those with fifteen years and less seniority for recruiting to LLC and subsequent skill or capabilities building.

14. Workers education would be facilitated by allowing time off to take examinations, attend classes, etc.

15. Why not use LLC as a study hall for employees taking courses at CSS, OSU or other postsecondary institutions?

16. How about a tutor grid? If someone is taking calculus and needs some help, locate an employee who knows the subject and get them together.

. Offer classes in things people can use--courses (maybe short one) that encompass needed skills.

18. Analyze work force as to education level by age, seniority, job performed, length of time a specific job has been performed, etc. in order to understand better a target group for the LLC.

3. There was some discussion about fact that workplace is changing and that employees need to keep up. Although those in room are aware of this (and also aware of fact that they may not be at GM forever), they do not think that this notion is prevalent throughout the plant.

4. Jerry talked about having been at the Saturn Plant in Tennessee and how fact that everyone wore similar clothing did away with the distinction between hourly and salaried.

LIFELONG LEARNING CENTER

Need to ...
-Prepare for the GED test?
-Get ready for workplace training?
-Review what you learned in high school?
-Improve reading, writing, math & study skills?
-Prepare for college?

The Lifelong Learning Center is offering ...
six-week courses
for you
to review and improve your skills.

How will participants be chosen?
-Application process
-Need to complete GED or job training
-Educational level
-BUs' & Depts' ability to backfill with JOBS Bankers
-Seniority within BU & Dept.
-Availability of participants

Visit or call The Lifelong Learning Center
at 5081, 5084 or 5085
-to get more information
-to set up an appointment

-All records will be kept confidential.
-Participants (from all shifts) will attend classes on work time during first shift.
-The sign-up period will be from 7:00 a.m. August 19 through 3:00 p.m. August 30, 1991.

Take advantage of the layoffs by using the

LIFELONG LEARNING CENTER

- refresh basic skills
- prepare for GED
- learn to use a computer
- develop technical/general skills using a computer

call for more information and/or an appointment:

Debbie	275-5081	Janet	275-5084
Margie	275-5085	Pat	275-5084

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Lifelong Learning Center
August Workshop Series

Tuesdays through August

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in Room 127

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"rite Right!"	August 20
"Estimate the Possibilities"	August 27

Perfect workshops to prepare for college courses or job training!

Employees must attend workshops on their own time.

Register for any or all workshops by calling the felong Learning Center at 5081, 5084 or 5085.

Lifelong Learning Center

Phone numbers Front Desk	(Debbie)	275-5081
Instructor	(Margie)	275-5085
Instructor	(Pat)	275-5084

Instructors available: 7am - 5:30pm M-Th
7am - 3:30pm Fri

Learning Center hours: 7am - Midnight M-Fri

Date of next appointment ____________

APPENDIX I

WORKSHOPS

1. Workshop Evaluation Form
2. Workshop Summaries
3. Publicity Flyer

Topic____ Date________________

WORKSHOP EVALUATION

Read each of the following and decide which response most clearly agrees with how you feel about the statement. Put a check mark (√) under the column for your response. Your feedback is very useful in providing the most effective training we can. Thank you for your responses.

	Agree	Disagree	Uncertain
1. I learned something new in this workshop.			
2. The information from this workshop will be useful in my job.			
3. The information from this workshop will be useful in areas of my life other than my job.			
4. The group work was a good learning experience.			
5. I understood the instructions used in this workshop.			
6. I understood the information given in this workshop.			
7. If this workshop were offered to all employees, I would recommend it to others.			

SHORT ANSWERS

8. What did you like most about this workshop?

9. What did you like least about this workshop?

10. If you have any additional comments or suggestions about this workshop, please write them below.

11. Please give us suggestions for future training and workshops.

Workshops at the Lifelong Learning Center
(7/25/91)

OFFERED AT THE LLC: (voluntary)

"Earn College Credit for Your Work Experience"

DATE: 5/10/91
TIME: 4:00 - 5:00
FACILITATOR: Verna Terminello
ATTENDANCE: 15 & BD, MG, SI

GOAL: To introduce employees to alternative college credit programs.

Presenters were Dr. Jean Bryant from Ohio University, Vickie Michaelis, Lisa McCurdy, Betty Harris, and Rod Terminello. Jean Bryant discussed the credit program at OU. Vickie (a former IFG employee) & Lisa presented a report they had done on various programs in central Ohio. Betty (another former IFG employee) discussed her role as a student in the OU program and the benefits of the GM tuition reimbursement plan. Rod discussed his experiences as a student in a University Without Walls program, and how he was accepted to an MBA program at the University of Colorado upon graduation.

"Skills Preparation for Computer Literacy I"

DATES:	TIMES:	FACILITATOR:	ATTENDANCE:
5/6/91	12:00 - 1:00	Janet Collins	3
	3:00 - 4:00	Janet Collins	3
5/7/91	3:00 - 4:00	Verna Terminello	2

"Study Skills"

6/17/91	1:00 - 3:00	Margie Girkins	5
	4:00 - 6:00	Pat Connor	11

GOAL: To demonstrate useful tips for surviving a training class or a college course.

Presenters discussed note-taking, understanding a textbook, preparing for tests.

"Skills Preparation for Principles of Refrigeration"

DATES:	TIMES:	FACILITATOR:	ATTENDANCE:
5/6/91	6:00 - 7:00	Pat Connor	7
5/7/91	6:00 - 7:00	Pat Connor	4

GOAL: To demonstrate useful tips for surviving a training class or a college course.

Presenters discussed note-taking, understanding a textbook, preparing for tests.

"Thanks for the Memory"

DATE: 7/10/91
TIMES: 1:00 - 3:00 ATTENDANCE: 6 & JC, MG
4:00 - 6:00 11 & PC
FACILITATOR: Bill Dowling

GOAL: To demonstrate strategies for "exercising" our memories.

Topics covered included: "memorizing 3 R's," and 8 systems for remembering.

"Write Right"

DATE: 7/17/91
TIMES: 1:00 - 3:00 ATTENDANCE: 3
4:00 - 6:00 5
FACILITATOR: Verna Terminello

GOAL: To discuss writing as a process, learn a format for writing memos; be able to recognize and write "good" memos.

Topics covered included: criteria for writing effective business messages, qualities of an effective memo including format, style, organization, mechanics, wording, etc. The classes examined and discussed examples of memos gathered from IFG.

"Read to Remember"

DATE: 7/24/91
TIME: 1:00 - 3:00
ATTENDANCE: 3
FACILITATOR: Janet Collins
TIME: 4:00 - 6:00
ATTENDANCE: 11
FACILITATOR: Pat Connor

GOAL: To learn how to summarize and analyze reading materials using various reading strategies.

Topics covered included the following strategies for enhancing comprehension and retention of reading materials: prereading, reading, and postreading; outlining; semantic mapping; using context clues; building vocabulary; and 3 levels of comprehension.

OFFERED AS PART OF JOBS BANKS TRAINING: (mandatory)

"JOBS Bank Workshop Evaluations"

DATE: 3/8/91
TIME: 11:30 - 3:30
FACILITATORS: Margie Girkins
Verna Terminello

DATE: 3/15/91
TIME: 11:30 - 3:30
FACILITATOR: Verna Terminello

GOAL: To evaluate training workshops JOBS Bank employees attended all week and to have them make suggestions for future workshops.

Employees filled out evaluation forms and discussed what they liked most and least about each workshop they attended as part of the JOBS Bank training program. Then they did a group brainstorm of topics to be considered by the Joint Training Office for future workshops and suggested modifications to the existing program.

"Learning Styles"

DATES	FACILITATOR	ATTENDANCE
3/7/91	Janet Collins	13
3/13/91	Pat Connor	20
3/14/91	Janet Collins	13

GOAL: To have employees take inventories to determine their individual learning styles and discuss the implications for learning in academic and workplace settings.

The facilitator began the session with a discussion of learninig styles. Employees then took the learning styles inventory published by the Wichita Public Schools and scored and plotted their own tests. They then were shown how to interpret their major, minor, and negligible styles. They practiced paired and group activities role-playing situations using different learning styles.

INCLUDED AS PART OF APO TRAINING:

"Lifelong Learning Center Overview"

FACILITATOR: Pat Connor

DATES:	ATTENDANCE:
5/20/91	7
5/22/91	14
6/9/91	7
7/9/91	9
7/22/91	14
7/24/91	18

GOAL: To introduce the trainees to the resources available at the LLC.

As part of the "employee development" portion of the APO training, trainees are given a 45 minute overview of the LLC, a tour of the center and an explanation of the programs available. The purpose of the overview is to promote the center and to recruit new learners. Also, trainees participate in a demonstration of pre-, during, and postreading activities using an article about the dangers of static electricity in the workplace.

OFFERED TO TRAINERS AND "ASK ME" RECRUITERS IN THE JOINT TRAINING CENTER:

FACILITATORS: Susan Imel
Bill Dowling

DATES:	TIMES:	ATTENDANCE:
4/11/91	9:00 - 11:15	10 & MG, VT
4/18/91	9:00 - 11:15	11 & VT
5/2/91	10:00 - 11:30	10 & VT
5/30/91	9:00 - 11:00	10 & MG

GOAL: To assist trainers in identifying and recruiting employees who may need help with basic skills.

Participants brainstormed ways to identify and approach possible recruitees for the Center and discussed what coping strategies people with low basic skills might use to function in the workplace. During one session, Bill asked trainers to speak to 3 people on the floor about the Center and report back to the group next session.

Workshop outlines, hand-outs, participant evaluations of the sessions, etc. can be found at the LifeLong Learning Center.

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in Room 127

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*Perfect workshops
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for college courses
or job training!*

Employees must attend workshops on their own time.

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APPENDIX J

PROGRAM EVALUATION

1. Evaluation Questions
2. Instructors' Activity Log
3. Rating Scales
4. Writing Sample Format
5. LLC Evaluation Form
6. Parameters and Procedures (Learner Profiles)
7. Help Us, Please
8. Letter from Plant Manager

EVALUATION QUESTIONS
TO GUIDE
DATA COLLECTION FOR IFG/UAW/OSU WPL PROJECT

1. HOW TO DESCRIBE BASIC SKILLS/LITERACY PROGRAM AND WORKSHOPS?

    a. Total served in Basic Skills/Literacy Program and in workshops, with separate breakout of cross-overs
        (source: IEP, Margie)
    b. Contact hours:
        (source: time cards (teacher time); sign-in sheets - workshops)
    c. Workshop goals, objectives, and methods
        (source: Verna's description)
    d. Basic Skills/Literacy Curriculum approaches/methods
        (source: Program evaluation sheet, OAACE report; list; lesson plan forms: examples/developed/adapted and commercial books)
            Examples -books: Delmar, Paradigm
            -adapted: Math on the Job, auto news
    e. Shift in project goals
        --implications for curriculum and recruitment
        --shift from Workplace goals to learner (adult) goals (Why/How/Extent/Issues/Context)
        (source: discussions/observation/IEP; project minutes; documented changes in IFG/UAW expectations for synchronous)

2. WHO ARE THE ATTENDEES?

    a. Demographics:
        mean age
        race
        gender
        single head of household
        limited English proficiency
        GM years with company
        (source: National Workplace Literacy Form (NWLF) for Basic Skills/Literacy attendees; see Mark/personnel listings for workshop participants)
    b. How learned of program - recruitment
        (source: NWLF, Buckeye Bulletin, paper promos)
    c. Learner profile - where they were at program beginning
        short/long-term goal (source: IEP)
        learning styles (source: IEP, learning styles inventory)
        prior education - level/attained, i.e., HS, GED, Coll. Tech. (source: IEP)
        skills at program entry (source: IEP, ABLE, CLOZE (investigate Jorie's scoring?), RQ1, RQ2, Writing sample)
        concurrent education activities

d. Motivation to enroll
   (source: IEP, learner recollection - Q4?)

3. WHAT ARE PRE AND POST INDICATORS OF PROGRESS?

a. Pre-/Post-test
   --ABLE
   --CLOZE
   --RRQ
b. Attendance on the Job
   (source: pre and during basic skills participation; attendance records)
c. Attained GED-related goals
   --entered GED from basic skills
   (source: IEP; instructor records)

4. WHAT DO LEARNERS SAY ABOUT THEIR OWN PROGRESS?

Sources:
   --Writing sample-post
      self-esteem
      goal attainment
   --Program evaluation sheet
   --Learner quotes
      anecdotal sheets from teacher record
      Buckeye Bulletin
      writing excerpts

5. WHAT DO OTHERS SAY ABOUT LEARNERS' PROGRESS?

a. Teachers
   progress scales (from Q3--behavior indicators of change)
   case studies
      how to select
      what to include
   structured observations (objective); perceptions (subjective)
   writing samples, analysis of . . . (from Q3)
b. Others
   supervisor/team members?
      --consult with learners (confidentiality?)
      --consult with GM
      --construct behavior rating scale of progress, only if feasible
c. Append generic/categorized comments to report

INSTRUCTOR'S ACTIVITY LOG

Name ____________________

Week ______________ Week ______________

ACTIVITY	M	T	W	Th	F	Sa	Su	Tot.	M	T	W	Th	F	Sa	Su	Tot.
Instruction																
Preparation (professional reading, lessons)																
Student recruiting and follow-up																
Materials development																
Record keeping																
Meetings																
Public relations																
Clerical - plant																
Clerical - project																
Miscellaneous																
Total Hrs. Worked																

NOTES: ____________________ NOTES: ____________________

Directions: Round estimates to closest 1/4 hour. Record increments of 1/4, 1/2, 1 hour. "Total hours worked" is not the total activity time, but the normal work day hours.

Attachment C

RATING SCALE

Learner # ____________

Prepared by ____________________

(1) Short-term goal focus.

0	1	2	3	4	5	Comments
States no short-term goal(s)	States short-term goal(s)	Waits for guidance to work toward goal(s)	Gives feedback on process	Makes suggestions for attaining goal(s)	Reaches short-term goal(s)	

(2) Long-term goal focus.

0	1	2	3	4	5	Comments
States no long-term goal(s)	States long-term goal(s)	Waits for guidance to work toward goal(s)	Gives feedback on process	Makes suggestions for attaining goal(s)	Reaches long-term goal(s)	

(3) Demonstrates ability to solve problems.

0	1	2	3	4	5	Comments
Does not identify problems	Identifies problems	Identifies causes of problems & resources to help solve problems	Identifies possible solutions	Implements plan to solve problems	Evaluates outcome(s) for appropriateness	

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(4) Demonstrates ability to direct own learning activities.

0	1	2	3	4	5
Does not demonstrate ability to direct learning activities	Completes activities as assigned	Asks questions & requests more activities	Gives feedback on appropriateness of material/ activities	Makes suggestions for own learning activities	Sets objectives & carries out without assistance

Comments

(5) Demonstrates ability in writing.

0	1	2	3	4	5
Does not write	Does not write in complete sentences, many grammar errors; unclear meanings	Needs many revisions; some correct sentences	Some errors; needs some revisions; usage mostly correct	Corrects own errors, good clarity; few errors	Has clarity, organization, correct grammar, & complex sentences; corrects own errors

Comments

(6) Demonstrates ability in mathematics.
(Pre ratings based on ABLE)

0	1	2	3	4	5
No math skills	Whole number mastery	Fraction mastery	Decimal mastery	Percent mastery	Pre algebra mastery

Comments

(7) Demonstrates ability in reading.

0	1	2	3	4	5	Comments
No reading skills	Understands letters, sounds, & common sight words	Understands literal meanings	Understands literal meanings & details; summarizes	Make some notes & some analysis	Consistently analyzes & applies information; makes own notes	

(8) Demonstrates ability in interpersonal communications.

0	1	2	3	4	5	Comments
Avoids conversation	Responds when spoken to	Seeks interaction	Volunteers information & ideas	Voices ideas & opinions with appropriate reasoning	Exhibits leadership skills	

ADVISOR
RATING SCALE

Learner ______________________________

Prepared by ______________________________ Date ______________________________

The Ohio State University Workplace Basics Program Committee is collecting evaluation data that will measure the results of the Basic Skills program in the Lifelong Learning Center. The employee listed above took part in this program for the last _________________________ and has given his/her permission for you to rate his/her performance on the job.

In each scale, please use the **red pen** to circle the number that you feel best describes this person's behavior before his/her participation in the program. Use the green pen to indicate this person's behavior currently. If you do not feel qualified to rate the employee in an area, please leave that scale blank. There is also space for written comments.

Please complete and return the form in the enclosed envelope. **ALL RESPONSES WILL BE KEPT CONFIDENTIAL.** Thank you for your cooperation.

PERMISSION FORM

By signing below, I am giving permission for the attached form to be completed by my supervisor or team leader. I understand that responses will be kept confidential.

______________________________ ______________________________
Name of Participant Date

______________________________ ______________________________
Witnessed by Date

(1) Demonstrates ability to solve problems.

0	1	2	3	4	5
Does not identify problems	Identifies there is a problem	Identifies there is a problem & resources to help solve problems	Identifies possible solutions	Carries out plan to solve problems	Evaluates outcome(s) for appropriateness

Comments

(2) Demonstrates ability in interpersonal communications.

0	1	2	3	4	5
Avoids conversation	Responds when spoken to	Seeks conversation	Volunteers information & ideas	Voices ideas & opinions with appropriate reasoning	Exhibits leadership skills by volunteering to take an active role in team meetings, supporting team members

Comments

(3) Demonstrates ability to perform current job assignment.

0	1	2	3	4	5
Unable to perform job assignment	Frequently needs assistance	Occasionally needs assistance	Performs current job assignment satisfactorily	Performs current job assignment satisfactorily and cooperates with others in work area	Performs job satisfactorily and is also willing to take on other assignments and assist others in work area

Comments

(4) Demonstrates commitment to total customer satisfaction

0	1	2	3	4	5
Demonstrates no concern for quality	Does not consistently produce quality products	"Just getting by" (consistently producing quality products	Communicates quality problems	Communicates quality problems, and concentrates on adding value	Totally committed to satisfying customer; (communicates quality problems, concentrates on adding value, and committed to continuous improvement)

Comments

THINK ABOUT YOURSELF AND THE TIME YOU HAVE SPENT IN THE (LEARNING CENTER, CLASS, ETC.) THEN ANSWER THE FOLLOWING QUESTION IN AN ESSAY.

WHAT CHANGES HAVE YOU EXPERIENCED IN YOUR PERSONAL AND WORK LIFE SINCE VISITING (LEARNING CENTER, COMPANY LAB, CLASS, ETC.)? COMPARE AND CONTRAST HOW YOU FELT ABOUT YOURSELF AND YOUR LEARNING ABILITIES WHEN YOU BEGAN THE THE PROGRAM AND HOW YOU FEEL NOW.

(The above statements can be used both as a writing exercise and also as a self assessment measure)

IFG-UAW-OSU
LIFELONG LEARNING CENTER
EVALUATION

Read each of the following statements and decide which response most clearly agrees with how you feel about the statement. Put a check mark (✓) under the column for your response.

Your responses will be confidential; you do not have to put your name on this form. Thank you for helping us evaluate the Lifelong Learning Center.

		YES	NO	NO COMMENT
1.	The instructors help make me feel at ease in the Center.	____	____	____
2.	The Learning Center environment makes it easy to study and concentrate.	____	____	____
3.	It is easy to find out information about the Learning Center.	____	____	____
4.	The instructions given are easy to understand.	____	____	____
5.	I like the one-on-one instruction.	____	____	____
6.	I would like more group work.	____	____	____
7.	I am able to use the skills I learn in the Learning Center on my current job.	____	____	____
8.	I enjoy the instructional materials used.	____	____	____
9.	I would recommend the Learning Center to other GM-IFG employees.	____	____	____
10.	The skills I am learning in the Learning Center are helping me reach my goals.	____	____	____

PLEASE TURN PAGE OVER ---->

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	YES	NO	NO COMMENT
11. The instructors are knowledgeable about the skills taught.	_____	_____	_____
12. The instructors are organized.	_____	_____	_____
13. The instructional materials used are appropriate for me.	_____	_____	_____
14. I am proud of what I have learned at the Learning Center.	_____	_____	_____

15. Check the following skills that you have learned or improved upon:

_____ writing
_____ spelling
_____ expressing an opinion
_____ problem solving
_____ reading to remember
_____ reading for details
_____ reading for analyzing information
_____ analyzing information on charts
_____ working with basic addition, subtraction, multiplication or division
_____ working with fractions
_____ working with decimals
_____ working with percent
_____ understanding how I learn best
_____ study skills

21. Additional Comments:

PARAMETERS AND PROCEDURES FOR DEVELOPING LEARNER PROFILES

IFG/UAW/OSU Workplace Literacy Project
November, 1991

The OSU project team have developed an interview Protocol to probe learners as to what got them interested in more learning, and what kinds of things in their background contributed to past and present attitudes toward learning. The interview guide is concerned both with communication and math skills.

We propose to do 3 - 6 learner profiles using this protocol and our own data collection guide to shape the profiles. The objective of each learner profile would be to illuminate the degree and nature of change in communications and math capacity of (Learner x) and would follow, but not necessarily be limited to our previously agreed-upon evaluation questions:

- Who is the learner (demographics; learning styles, etc.)?
- What are pre and post indicators of progress (GAP, Cloze, Able, etc.)?
- What does learner say about his/her own progress (writing sample, interviews with learner, etc.)?
- What do others say about learner's progress (interviews with teachers, plant personnel, progress scales, etc.)?

Developing the learner profiles will provide interpretative material for our pre-post measures as well as reveal important information about learner responses to Life-long Learning Center treatments. Questions such as the following will shape the interpretation of data gathered through this process:

- What do learners actually do when they are reading/computing?
- How do learners react/respond to the present teaching/learning strategies in the program?
- What future interventions should be most successful with this learner?

The plan is to select a non-reader, mid-level reader, and upper level reader, -- we hope to get two of each. Math subjects will be selected using the same criteria. The same individual may serve as subject for both math and communications profiles. We will examine the files to locate learners in these categories for whom we already have a good deal of information, then proceed to fill in the gaps as needed for the profile. We agree that we do not want to subject learners to redundant or irrelevant questioning.

Math questions for learner profile interviews:

1. In general, how do you feel about math?
    - (If a positive answer) Do you tend to find math easy?
    - (If a negative answer) Do you tend to find math difficult?
    - Are there some kinds of math problems you enjoy, some you hate? (What are those?)

2. Do you think your feelings about math relate to how you felt about math in school?
    - Did you enjoy math in school?
    - What kinds of activities do you remember doing in math?
    - What do you remember about your math teachers?

3. Do you use math in daily life or on your job? How? (budget, groceries, hobbies, money, weight, height, medicine, food ingredients such as sodium and cholesterol, help child or spouse; counting parts, wage statement, packing, inventory; gasoline, lottery, etc.) Do you find these math uses easy or difficult? Why or why not?

4. Do you have "tricks" that you use to remember math facts or solve problems? (If so), Can you give an example?

5. When you have trouble with math on the job or in personal life, how or do you get help?

6. Do you know people who have "math anxiety"? (Explain an necessary and probe about characteristics.) If you were giving advice to a friend on getting over "math anxiety", what would you say?

7. If you were a teacher, how would you be able to tell if someone was having trouble with math?

Also: Ask learner helper to add a response to: What does (name) do when faced with a problem in completing a math problem? What kind of logic/strategy is used?

Interview: I'm going to make some notes because I won't be able to remember everything you and I discuss -- that's for sure. No one will know your name; you'll be a number. Nobody will ever be able to identify who the information came from -- held in strictest confidence.

1. What made you decide to come to our Basic Skills program?
   Probes: What got you interested in more learning?

2. Has your attitude toward learning changed? If so, why?

3. If you could read and write better and do math better, do you think you could be more productive on your job?
   Probes: Do you think that would help the plant? How?
   What kinds of basic skills would be most helpful for your job?

4. If GM gave you more educational opportunities, would you use them?
   Probe: If they did, what would you like?
   How would you use them?

5. Is this all different from school and the learning experiences you had in school? Please tell me about them.

6. I'd like to talk with you about reading and writing, communications now. How do you feel about reading? About writing? About expressing yourself?
   Probes: Reading: is it something you like/dislike to do?
   Why or why not?
   Is it different from how you used to feel?
   Writing: same probes

7. Do you find reading easy or difficult?
   Probe: Why/why not?
   Do you find writing and spelling easy or difficult?

8. What's easier to do, read word-for-word, by-word, or read for meaning?

[illegible]

9. Would you like to still improve your reading? Be a better writer? Be a better speller? Better at talking with others?
   Probe: Why/why not?

10. How much reading do you do on your own, either for your work here in our program or for pleasure? Writing?
    Probe: What kinds of things do you read? Write?

11. When you have trouble reading, what do you do?
Probes: When you come to a word you don't know, what do you do?
Where did you learn to do these things?

Let's take a look at these pages from the Charting EasyBook. Would you mind reading part or all of them aloud for me? Let's talk about what you're doing when you read as you go along.

12. How would you explain to a young child how to read?
Probes: What else can you think of that you could tell him or her?

13. What do you think people do who are good at reading? At writing? At spelling? At communicating with others?
Probes: What kinds of specific things do they do?

14. How did they teach you to read in the beginning, in elementary school? To write? to spell?
Probes: Tell me as much as you can remeber: types of books you and the teacher used, worksheets, reading groups, activities, incidents you can remember: both good and bad.

15. How do you think you did in reading in:
grade school?
high school?
In writing?
Probes: Why? What did the teacher or other kids say to you about your reading, your writing? About how you were doing in school?
How do you feel or did feel about yourself because of all this?

IF TIME: Ask about math in the same way, and then about problem solving: what they need on the job, what they did or didn't learn in school, etc.

Attitudes toward their Dialects:
If they speak AE or BE, ask them how they feel about speaking, about communicating. Do they like the way they talk? Would they like to change it if they could? Do people make fun of them?

HELP US, PLEASE!

We need your responses on the attached evaluation to keep the Lifelong Learning Center going and to make changes if they are necessary. Your input is **VERY IMPORTANT AND WILL BE KEPT CONFIDENTIAL.**

Your evaluation of the LLC will not be seen by either plant personnel or teachers. It will be read and summarized with all the other responses by OSU staff. Please respond in one of the following ways:

1. Mail your evaluation in the attached envelope

   or

2. Give it to one of the teachers (in the sealed envelope)

   or

3. Call OSU staff, Nancy Puleo at 292-4353. She will take your evaluation over the phone.

THANK YOU for helping us make the Lifelong Learning Center continue to be a great place for all of us.

Inland Fisher Guide Division
General Motors Corporation
Columbus Plant
Plant Manager

200 Georgesville Road
Columbus, Ohio 43228-0512

February 5, 1992

Office of Vocational and
Adult Education
U.S. Department of Education

Dear Dr. William Dowling:

The Columbus Plant has been in the automobile hardware business for General Motors Corporation for 46 years. Many processes that were adequate on the manufacturing floor began to change with new technology. All types of skills had to be updated and training for all of the people began to accelerate. The increased number of Federal Laws relative to work place safety and environment also provided the need for increased training.

Although we recognized that a large percentage of the work force was capable of being trained, there were those that coincided with Society as a whole that were unable to read, write and keep up with the requirements. The birth of the Lifelong Learning Center had to take place.

Utilizing the talents beyond the plant and obtaining resources such as the Federal grant made it possible for IFG Columbus to take a quantum leap forward in this area. We were recognized as a leader in this endeavor by many including the Columbus Area Labor/Management Committee. The people involved from O.S.U. as well as the U.A.W. and other IFG people have done a great job of launching this program, continuing and looking to the future. It is with great pleasure as I see these people utilizing the facility and the programs to open up new opportunities for them as individuals as well as helping our plant to grow. For the first time in many cases these people feel good about their accomplishments and now are smiling both inside and outside.

I am proud that I could be a part of this great endeavor.

Sincerely,

Harry R. Lambert

Harry R. Lambert
Plant Manager

HRL:w